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NEWS 2 DEC 01 ChemPort single article sales feature unavailable
NEWS 3 JAN 06 The retention policy for unread STNmail messages
will change in 2009 for STN-Columbus and STN-Tokyo
NEWS 4 JAN 07 WPIDS, WPINDEX, and WPIX enhanced Japanese Patent
Classification Data
NEWS 5 FEB 02 Simultaneous left and right truncation (SLART) added
for CERAB, COMPUAB, ELCOM, and SOLIDSTATE
NEWS 6 FEB 02 GENBANK enhanced with SET PLURALS and SET SPELLING
NEWS 7 FEB 06 Patent sequence location (PSL) data added to USGENE
NEWS 8 FEB 10 COMPENDEX reloaded and enhanced
NEWS 9 FEB 11 WTEXTILES reloaded and enhanced
NEWS 10 FEB 19 New patent-examiner citations in 300,000 CA/CAPLUS
patent records provide insights into related prior
art
NEWS 11 FEB 19 Increase the precision of your patent queries -- use
terms from the IPC Thesaurus, Version 2009.01
NEWS 12 FEB 23 Several formats for image display and print options
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NEWS 13 FEB 23 MEDLINE now offers more precise author group fields
and 2009 MeSH terms
NEWS 14 FEB 23 TOXCENTER updates mirror those of MEDLINE - more
precise author group fields and 2009 MeSH terms
NEWS 15 FEB 23 Three million new patent records blast AEROSPACE into
STN patent clusters
NEWS 16 FEB 25 USGENE enhanced with patent family and legal status
display data from INPADOCDB
NEWS 17 MAR 06 INPADOCDB and INPAFAMDB enhanced with new display
formats
NEWS 18 MAR 11 EPFULL backfile enhanced with additional full-text
applications and grants
NEWS 19 MAR 11 ESBIODBASE reloaded and enhanced
NEWS 20 MAR 20 CAS databases on STN enhanced with new super role
for nanomaterial substances
NEWS 21 MAR 23 CA/CAPLUS enhanced with more than 250,000 patent
equivalents from China
NEWS 22 MAR 30 IMSPATENTS reloaded and enhanced
NEWS 23 APR 03 CAS coverage of exemplified prophetic substances
enhanced
NEWS 24 APR 07 STN is raising the limits on saved answers

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AND CURRENT DISCOVER FILE IS DATED 23 JUNE 2008.

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* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 13:01:28 ON 22 APR 2009

=> file casreact
COST IN U.S. DOLLARS
FULL ESTIMATED COST

SINCE FILE	TOTAL
ENTRY	SESSION
0.22	0.22

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FILE CONTENT:1840 - 19 Apr 2009 VOL 150 ISS 17

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* *****

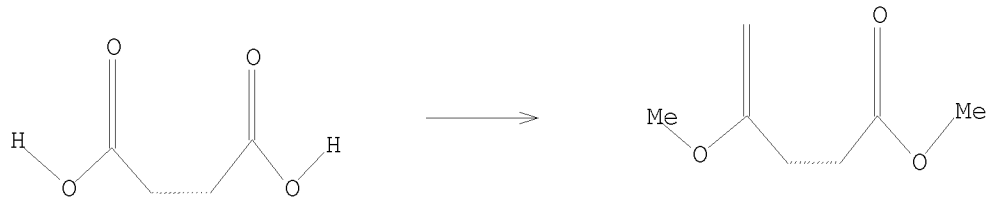
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=>
Uploading C:\Program Files\Stnexp\Queries\10577374.str

L1 STRUCTURE UPLOADED

=> d l1
L1 HAS NO ANSWERS
L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1
SAMPLE SEARCH INITIATED 13:02:08 FILE 'CASREACT'
SCREENING COMPLETE - 778 REACTIONS TO VERIFY FROM 84 DOCUMENTS
100.0% DONE 778 VERIFIED 105 HIT RXNS 19 DOCS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED VERIFICATIONS: 13888 TO 17232
PROJECTED ANSWERS: 119 TO 641

L2 19 SEA SSS SAM L1 (105 REACTIONS)

=> s l1 full

FULL SEARCH INITIATED 13:02:12 FILE 'CASREACT'

SCREENING COMPLETE - 9335 REACTIONS TO VERIFY FROM 1553 DOCUMENTS

100.0% DONE 9335 VERIFIED 636 HIT RXNS 247 DOCS
SEARCH TIME: 00.00.04

L3 247 SEA SSS FUL L1 (636 REACTIONS)

=> file caplus

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	123.13	123.35

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FILE COVERS 1907 - 22 Apr 2009 VOL 150 ISS 17
FILE LAST UPDATED: 21 Apr 2009 (20090421/ED)

Caplus now includes complete International Patent Classification (IPC) reclassification data for the third quarter of 2008.

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This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l3

L4 247 L3

=> s l4 and methanol

247957 METHANOL

L5 52 L4 AND METHANOL

=> s l5 not py > 2004

6074028 PY > 2004

L6 31 L5 NOT PY > 2004

=> d occ l6 1-31

L6 ANSWER 1 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT
AN 1
IT 1

L6 ANSWER 2 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT
AN 1
IT 1

L6 ANSWER 3 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT
AN 1
IT 1

L6 ANSWER 4 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT
AN 1
AB 1

L6 ANSWER 5 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT
AN 1
ST 1
IT 8

L6 ANSWER 6 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT
AN 1
IT 1

L6 ANSWER 7 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT
AN 1
AB 1
IT 1

L6 ANSWER 8 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT
AN 1
IT 1

L6 ANSWER 9 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT
AN 1
TI 1
ST 1
IT 60

L6 ANSWER 10 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT
AN 1
AB 1
IT 1

L6 ANSWER 11 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT
AN 1
IT 1

L6 ANSWER 12 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT

AN	1
AB	2
ST	1
IT	1

L6 ANSWER 13 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT

AN	1
AB	1
IT	1

L6 ANSWER 14 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT

AN	1
AB	2

L6 ANSWER 15 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT

AN	1
AB	2
IT	1

L6 ANSWER 16 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT

AN	1
ST	1

L6 ANSWER 17 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT

AN	1
AB	1

L6 ANSWER 18 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT

AN	1
IT	1

L6 ANSWER 19 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT

AN	1
IT	1

L6 ANSWER 20 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT

AN	1
IT	4

L6 ANSWER 21 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT

AN	1
IT	1

L6 ANSWER 22 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT

AN	1
IT	1

L6 ANSWER 23 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
FIELD COUNT

AN	1
AB	1

L6 ANSWER 24 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

FIELD	COUNT
AN	1
IT	1

L6 ANSWER 25 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

FIELD	COUNT
AN	1
IT	2

L6 ANSWER 26 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

FIELD	COUNT
AN	1
IT	1

L6 ANSWER 27 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

FIELD	COUNT
AN	1
IT	2

L6 ANSWER 28 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

FIELD	COUNT
AN	1
IT	1

L6 ANSWER 29 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

FIELD	COUNT
AN	1
TI	1
ST	1
IT	8

L6 ANSWER 30 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

FIELD	COUNT
AN	1
IT	2

L6 ANSWER 31 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

FIELD	COUNT
AN	1
IT	1

=> d l6 ibib abs hit 1-31

L6 ANSWER 1 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:396547 CAPLUS

DOCUMENT NUMBER: 144:369644

TITLE: Catalytic synthesis of dimethyl fumarate with phosphotungstic acid

AUTHOR(S): Li, Yangshu; Yu, Bin

CORPORATE SOURCE: Science School, Nanjing University of Technology, Nanjing, 210009, Peop. Rep. China

SOURCE: Huagong Shikan (2004), 18(2), 57-58
CODEN: HUSHFT; ISSN: 1002-154X

PUBLISHER: Huagong Shikan Zazhishe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

OTHER SOURCE(S): CASREACT 144:369644

AB Phosphotungstic acid was used as an esterification catalyst for synthesizing di-Me fumarate (DMF), with maleic anhydride as the starting material and potassium bromate KBrO3 as the isomerizing agent. This method has the advantages of requiring small amount of catalyst with high catalysis activity, resulting in shorter reaction time and high DMF yield

(typically over 90%). The purification procedure of DMF is simple.
AN 2005:396547 CAPLUS
DN 144:369644
IT 67-56-1, Methanol, reactions
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(catalytic synthesis of di-Me fumarate with phosphotungstic acid)

L6 ANSWER 2 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2004:626179 CAPLUS
DOCUMENT NUMBER: 141:259007
TITLE: Synthesis of chiral phosphoantigens and their activity in $\gamma\delta$ T cell stimulation
AUTHOR(S): Song, Yongcheng; Zhang, Yonghui; Wang, Hong; Raker, Amy; Sanders, John; Broderick, Erin; Clark, Allen; Morita, Craig; Oldfield, Eric
CORPORATE SOURCE: Department of Chemistry, University of Illinois at Urbana-Champaign, Urbana, IL, 61801, USA
SOURCE: Bioorganic & Medicinal Chemistry Letters (2004), 14(17), 4471-4477
CODEN: BMCLE8; ISSN: 0960-894X
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 141:259007

AB $\gamma\delta$ T cells expressing V γ 2V δ 2 T cell receptors are activated by a broad range of phosphorus-containing small mols., termed phosphoantigens, and are of interest in the context of the chemotherapy of B cell malignancies. Here, we report the synthesis of four pairs of chiral phosphoantigens: the bromohydrins of isopentenyl diphosphate (PhosphostimTM), the epoxides of isopentenyl diphosphate (EIPP); and the corresponding bromohydrin and epoxide analogs of but-3-enyl diphosphate. The ability of each compound to stimulate human V γ 2V δ 2 T cells was determined by TNF- α release and cell proliferation. In these assays, the (R)-bromohydrin diphosphates, were, on average, about twice as active as the (S)-bromohydrin diphosphates. In contrast, the (S)-form of EIPP was about twice as active as (R)-EIPP. The activities of the epoxy but-3-enyl diphosphates were both very low. These results suggest that chiral phosphoantigens, as opposed to racemic mixts., may have utility in immunotherapy.

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AN 2004:626179 CAPLUS
DN 141:259007
IT 67-56-1, Methanol, reactions 124-63-0, Methanesulfonyl chloride 2857-97-8 6236-09-5 6236-10-8 64028-90-6 69739-34-0 76282-45-6 76282-49-0 432544-59-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis of chiral phosphoantigens and their activity in $\gamma\delta$ T cell stimulation)

L6 ANSWER 3 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2004:557260 CAPLUS
DOCUMENT NUMBER: 142:176440
TITLE: Recovering of dibasic acid ester from waste alkali liquor of caprolactam preparation
INVENTOR(S): Zhou, Xianjun; Wang, Keshun; Wu, Chonghe; Liu, Yaoshong; Jiang, Ping
PATENT ASSIGNEE(S): Zhongxinghua Industrial Co., Ltd., Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 19 pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1401624	A	20030312	CN 2001-124260	20010820
CN 1172898	C	20041027		

PRIORITY APPLN. INFO.: CN 2001-124260 20010820

OTHER SOURCE(S): CASREACT 142:176440

AB The recovering method comprises: (1) neutralizing the waste alkali liquor of caprolactam preparation to sep. aqueous phase and organic phase and oxidizing the organic substance in the organic phase with an oxidant selected from HNO₃, H₂O₂, HClO₄, or KMnO₄, (2) transferring the reaction product of the dibasic acid into a two-segments concentration unit to recover monobasic acid and HNO₃ in the

first segment and decompose the residual HNO₃ and nitro compound in the second segment to obtain crude C₄₋₆ dibasic acid, (3) esterifying with C₁₋₄ alc. in the presence of catalyst, such as H₂SO₄, H₃PO₄, HNO₃, sulfonic acid, and cationic exchange resin, and distilling

AN 2004:557260 CAPLUS

DN 142:176440

IT 67-56-1, Methanol, reactions 7664-38-2, Phosphoric acid, reactions 7697-37-2, Nitric acid, reactions 7722-64-7, Potassium permanganate 7722-84-1, Hydrogen peroxide, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(recovering of dibasic acid ester from waste alkali liquor of caprolactam preparation)

L6 ANSWER 4 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:163065 CAPLUS

DOCUMENT NUMBER: 141:54226

TITLE: Synthesis of 2-(5-methyl-2-phenyl-4-oxazolyl)ethanol

AUTHOR(S): Wang, Ya-Lou; Liu, Xing; Li, Jiang-Chuan

CORPORATE SOURCE: Department of Medicinal Chemistry, China
Pharmaceutical University, Nanjing, 210009, Peop. Rep. China

SOURCE: Yingyong Huaxue (2004), 21(1), 104-106
CODEN: YIHUED; ISSN: 1000-0518

PUBLISHER: Kexue Chubanshe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

OTHER SOURCE(S): CASREACT 141:54226

AB 2-(5-Methyl-2-phenyl-4-oxazolyl)ethanol (I) was synthesized from L-aspartic acid via 5-step reactions; esterification, N-benzoylation, Dakin-West reaction, cyclization and reduction using LiAlH₄ in about 31.2% overall yield. Reacting L-aspartic acid with methanol in 0 °C gave 72.6% L-aspartic acid β-Me ester hydrochloride, which was benzoylated to give 82.0% N-benzoyl-L-aspartic acid β-Me ester (II). Dakin-West reaction of II gave 74.4% Me 3-benzamido-4-oxovalerate, which was cyclized in toluene by POCl₃ to give 81.8% Me 2-(5-methyl-2-phenyl-4-oxazolyl)acetate, the latter can easily convert to I by treatment with ether solution of LiAlH₄ in yield of 86%. All the compds. were characterized by ¹H NMR, IR and elemental anal.

AN 2004:163065 CAPLUS

DN 141:54226

AB 2-(5-Methyl-2-phenyl-4-oxazolyl)ethanol (I) was synthesized from L-aspartic acid via 5-step reactions; esterification, N-benzoylation, Dakin-West reaction, cyclization and reduction using LiAlH₄ in about 31.2% overall yield. Reacting L-aspartic acid with methanol in 0 °C gave 72.6% L-aspartic acid β-Me ester hydrochloride, which was benzoylated to give 82.0% N-benzoyl-L-aspartic acid β-Me ester

(II). Dakin-West reaction of II gave 74.4% Me 3-benzamido-4-oxovalerate, which was cyclized in toluene by POC13 to give 81.8% Me 2-(5-methyl-2-phenyl-4-oxazolyl)acetate, the latter can easily convert to I by treatment with ether solution of LiAlH₄ in yield of 86%. All the compds. were characterized by ¹H NMR, IR and elemental anal.

L6 ANSWER 5 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:954590 CAPLUS
DOCUMENT NUMBER: 141:191003
TITLE: Reactions of 2H-3,1-benzoxazine -2,4(1H)-dione
AUTHOR(S): Milea, M.; Csunderlik, C.; Fota, Daniela
CORPORATE SOURCE: Department of Organic Chemistry, The University
"POLITEHNICA" Timisoara, Timisoara, RO-1900, Rom.
SOURCE: Buletinul Stiintific al Universitatii "Politehnica"
din Timisoara Romania, Seria Chimie si Mediului
(2000), 45(1), 163-167
CODEN: BSIMFG; ISSN: 1224-6018
PUBLISHER: Universitatii "Politehnica" din Timisoara
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 141:191003
AB Reactions of isatoic anhydride (2H-3,1-benzoxazine -2,4(1H)-dione) with
alcs. and phenols, both in the presence or absence of basic catalysts,
have been studied, conditions have been established and the products
characterized by physico-chemical methods. Also the reactions of isatoic
anhydride with Me esters of α -amino acids were studied among the
reactions of isatoic anhydride with nitrogen nucleophiles.
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AN 2003:954590 CAPLUS

DN 141:191003

ST isatoic anhydride benzoxazinedione reaction alc phenol; amino acid ester
nucleophile prepn esterification methanol benzoxazinedione
reaction

IT Amino acids, preparation

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)

(esters; prepn of Me esters of amino acids by esterification of amino
acids with methanol)

IT Esterification

(prepn of Me esters of amino acids by esterification of amino acids
with methanol)

IT 67-56-1, Methanol, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(prepn of Me esters of amino acids by esterification of amino acids
with methanol)

IT 5680-79-5P 6384-18-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)

(prepn of Me esters of amino acids by esterification of amino acids
with methanol)

IT 2491-18-1P 7517-19-3P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn of Me esters of amino acids by esterification of amino acids
with methanol)

L6 ANSWER 6 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:363327 CAPLUS

DOCUMENT NUMBER: 139:230335

TITLE: Base-induced alcoholysis of N-arylmaleimides: facile
in situ oxa-michael addition to alkyl maleanilates:
Two-step one-pot rapid access to alkoxy-succinic acids
AUTHOR(S): Mhaske, Santosh B.; Argade, Narshinha P.

CORPORATE SOURCE: Division of Organic Chemistry (Synthesis), National Chemical Laboratory, Pune, 411 008, India

SOURCE: Synthesis (2003), (6), 863-870
CODEN: SYNTBF; ISSN: 0039-7881

PUBLISHER: Georg Thieme Verlag

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 139:230335

AB A simple, efficient and general two-step, one-pot approach to alkoxysuccinic acids is described. The potassium carbonate-catalyzed reactions of alcs. with 1-(4-methylphenyl)-1H-pyrrole-2,5-dione followed by an acid-induced hydrolysis of intermediate products furnished alkoxysuccinic acids in 90-98% yields. All the intermediates from the reaction of 1-(4-Methylphenyl)-1H-Pyrrole-2,5-dione were characterized, proving that the in situ formed alkyl maleanilates are the actual Michael acceptors.

REFERENCE COUNT: 61 THERE ARE 61 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AN 2003:363327 CAPLUS

DN 139:230335

IT 64-17-5, Ethanol, reactions 67-56-1, Methanol, reactions
67-63-0, 2-Propanol, reactions 71-41-0, 1-Pentanol, reactions
100-51-6, Benzenemethanol, reactions 107-21-1, 1,2-Ethanediol, reactions
108-31-6, Maleic anhydride, reactions 111-87-5, 1-Octanol, reactions
112-30-1, 1-Decanol 112-53-8, 1-Dodecanol 3886-69-9,
(α R)- α -Methylbenzenemethanamine 24870-11-9,
(2Z)-4-[(4-Methylphenyl)amino]-4-oxo-2-butenic acid
RL: RCT (Reactant); RACT (Reactant or reagent)
(two-step one-pot preparation of (alkoxy)succinic acids via base-induced alcoholysis of N-arylmaleimides and facile in situ oxa-Michael addition to alkyl maleanilates)

L6 ANSWER 7 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:44804 CAPLUS

DOCUMENT NUMBER: 138:337689

TITLE: Synthesis of dimethyl fumarate by heterogeneous supported heteropoly acid

AUTHOR(S): Xu, Wenyuan; Peng, Daofeng; Xiong, Guoxuan; Zhu, Xiaping

CORPORATE SOURCE: Department of Applied Chemistry, East China Institute of Technology, Fuzhou, 344000, Peop. Rep. China

SOURCE: Huaxue Shiji (2002), 24(6), 367-368
CODEN: HUSHDR; ISSN: 0258-3283

PUBLISHER: Huagongbu Huaxue Shiji Xinsizhan

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

OTHER SOURCE(S): CASREACT 138:337689

AB Synthesis of di-Me fumarate by esterification reaction of fumaric acid with methanol catalyzed by heterogeneous supported heteropoly acid PW12/C was studied in this paper. A careful study of the effects on the esterification reaction was done. Under these conditions, the yield of ester was about 91.6%.

AN 2003:44804 CAPLUS

DN 138:337689

AB Synthesis of di-Me fumarate by esterification reaction of fumaric acid with methanol catalyzed by heterogeneous supported heteropoly acid PW12/C was studied in this paper. A careful study of the effects on the esterification reaction was done. Under these conditions, the yield of ester was about 91.6%.

IT 67-56-1, Methanol, reactions 110-17-8, Fumaric acid, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis of di-Me fumarate by heterogeneous supported heteropoly acid)

L6 ANSWER 8 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2002:952405 CAPLUS
DOCUMENT NUMBER: 139:6591
TITLE: Catalytic synthesis of dimethyl fumarate using
solid-supported superacid catalyst
AUTHOR(S): Zhao, Lifang; He, Zhusheng; Ma, Yuying
CORPORATE SOURCE: Dept. Chem. + Chem. Eng., Baoji Coll. Arts + Sci.,
Baoji, 721007, Peop. Rep. China
SOURCE: Baoji Wenli Xueyuan Xuebao, Ziran Kexueban (2002),
22(2), 138-140
CODEN: BWZKFL
PUBLISHER: Baoji Wenli Xueyuan Xuebao Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
OTHER SOURCE(S): CASREACT 139:6591

AB The preparation of supported catalyst, $\text{TiO}_2/\text{La}_3+/\text{SO}_4^{2-}$ supported on mol.
sieves, and its catalytic activity to esterification of fumarate were
studied. The catalyst had fine catalytic activity. The optimum
conditions of the esterification were decided by orthogonal expts. as
follows: activation temperature of the catalyst was 500° , the amount of
catalyst was 15% (based on the mass of fumaric acid), the mole ratio of
alc. to acid was 6:1 and the reaction time was 5 h. Under the optimum
reaction conditions, the yield of di-Me fumarate was up to 92.3%.
AN 2002:952405 CAPLUS
DN 139:6591
IT 67-56-1, Methanol, reactions 110-17-8, Fumaric acid, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis of di-Me fumarate using solid-supported superacid catalyst)

L6 ANSWER 9 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2002:903288 CAPLUS
DOCUMENT NUMBER: 138:271016
TITLE: A simple, convenient and expeditious route to methyl
esters of carboxylic acids by thionyl chloride-
methanol
AUTHOR(S): Chatterjee, Tapasi; Chattopadhyay, Subhagata
CORPORATE SOURCE: Department of Chemistry, Jadavpur University, Kolkata,
700 032, India
SOURCE: Oriental Journal of Chemistry (2002), 18(2), 187-190
CODEN: OJCHEG; ISSN: 0970-020X
PUBLISHER: Oriental Scientific Publishing Co.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 138:271016

AB A simple, convenient and expeditious preparation of 40-90% Me esters of
carboxylic acids by thionyl chloride and MeOH was described. Among the 29
esters prepared were 90% 2-IC₆H₄CO₂Me, 87% 4-MeOC₆H₄CO₂Me and 86%
Bz(CH₂)₂CO₂Me.

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AN 2002:903288 CAPLUS
DN 138:271016

TI A simple, convenient and expeditious route to methyl esters of carboxylic
acids by thionyl chloride-methanol
ST thionyl chloride methanol esterification carboxylic acid
IT Esterification
(preparation of Me esters of carboxylic acids by thionyl chloride-
methanol)
IT Esters, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of Me esters of carboxylic acids by thionyl chloride-
methanol)

- IT 62-23-7, 4-Nitrobenzoic acid 65-85-0, Benzoic acid, reactions 69-72-7, 2-Hydroxybenzoic acid, reactions 79-11-8, Chloroacetic acid, reactions 87-69-4, L-Tartaric acid, reactions 88-67-5, 2-Iodobenzoic acid 88-99-3, Phthalic acid, reactions 99-06-9, 3-Hydroxybenzoic acid, reactions 99-34-3, 3,5-Dinitrobenzoic acid 99-96-7, 4-Hydroxybenzoic acid, reactions 100-09-4, 4-Methoxybenzoic acid 103-82-2, Phenylacetic acid, reactions 110-15-6, Succinic acid, reactions 110-16-7, Maleic acid, reactions 110-17-8, Fumaric acid, reactions 110-44-1, 2,4-Hexadienoic acid 117-34-0, Diphenylacetic acid 118-91-2, 2-Chlorobenzoic acid 121-92-6, 3-Nitrobenzoic acid 140-10-3, trans-Cinnamic acid, reactions 141-82-2, Malonic acid, reactions 144-62-7, Oxalic acid, reactions 527-72-0, 2-Thiophenecarboxylic acid 552-16-9, 2-Nitrobenzoic acid 2051-95-8, 3-Phenylpropionic acid
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of Me esters of carboxylic acids by thionyl chloride-methanol)
- IT 64-17-5, Ethanol, reactions 67-56-1, Methanol, reactions 67-63-0, Isopropanol, reactions 7719-09-7, Thionyl chloride
RL: RGT (Reagent); RACT (Reactant or reagent)
(preparation of Me esters of carboxylic acids by thionyl chloride-methanol)
- IT 93-58-3P, Methyl benzoate 93-89-0P, Ethyl benzoate 96-34-4P, Methyl chloroacetate 99-76-3P, Methyl 4-hydroxybenzoate 99-77-4P, Ethyl 2-nitrobenzoate 101-41-7P, Methyl phenylacetate 106-65-0P, Dimethyl succinate 108-59-8P, Dimethyl malonate 119-36-8P, Methyl 2-hydroxybenzoate 121-98-2P, Methyl 4-methoxybenzoate 131-11-3P, Dimethyl phthalate 553-90-2P, Dimethyl oxalate 606-27-9P, Methyl 2-nitrobenzoate 608-68-4P 610-96-8P, Methyl 2-chlorobenzoate 610-97-9P, Methyl 2-iodobenzoate 618-95-1P, Methyl 3-nitrobenzoate 619-50-1P, Methyl 4-nitrobenzoate 624-49-7P, Dimethyl fumarate 689-89-4P 939-48-0P, Isopropyl benzoate 1754-62-7P 2702-58-1P, Methyl 3,5-dinitrobenzoate 3469-00-9P, Methyl diphenylacetate 5380-42-7P, Methyl 2-thiophenecarboxylate 13756-40-6P, Isopropyl 2-nitrobenzoate 19438-10-9P, Methyl 3-hydroxybenzoate 25333-24-8P, Methyl 3-benzoylpropionate
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of Me esters of carboxylic acids by thionyl chloride-methanol)

L6 ANSWER 10 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2002:81290 CAPLUS
DOCUMENT NUMBER: 137:352688
TITLE: Catalytic reaction-distillation synthesis of dimethyl fumarate by fixed-carried heteropoly acid
AUTHOR(S): Ding, Bin; Guo, Xiangming
CORPORATE SOURCE: Jilin Institute of Chemical Technology, Jilin, 1320022, Peop. Rep. China
SOURCE: Dongbei Shida Xuebao, Ziran Kexueban (2001), 33(4), 61-65
CODEN: DSZKEE; ISSN: 1000-1832
PUBLISHER: Dongbei Shifan Daxue Xueshu Qikanshe
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
OTHER SOURCE(S): CASREACT 137:352688

AB A new synthesis technol. of di-Me fumarate was presented. Fumarate, methanol, and self-made fixed-carried heteropoly acid as catalyst were used. The reaction-distillation conditions were ratio of alc. and acid about 7:1; esterification temperature about 67-78°; and reaction time ≤6 h. The yield of product was up to 92%.

AN 2002:81290 CAPLUS

DN 137:352688

AB A new synthesis technol. of di-Me fumarate was presented. Fumarate, methanol, and self-made fixed-carried heteropoly acid as catalyst

were used. The reaction-distillation conditions were ratio of alc. and acid about 7:1; esterification temperature about 67-78°; and reaction time ≤6 h. The yield of product was up to 92%.

IT 67-56-1, Methanol, reactions 110-17-8, Fumaric acid, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(catalytic reaction-distillation synthesis of di-Me fumarate by
fixed-carried
heteropoly acid)

L6 ANSWER 11 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2001:537078 CAPLUS
DOCUMENT NUMBER: 135:256190
TITLE: Lipase-catalyzed synthesis of RGD diamide in aqueous
water-miscible organic solvents
AUTHOR(S): Zhang, L.-Q.; Zhang, Y.-D.; Xu, L.; Li, X.-L.; Yang,
X.-c.; Xu, G.-L.; Wu, X.-X.; Gao, H.-Y.; Du, W.-B.;
Zhang, X.-T.; Zhang, X.-Z.
CORPORATE SOURCE: Key Laboratory of Molecular Enzymology and
Engineering, Jilin University, Changchun, 130023,
Peop. Rep. China
SOURCE: Enzyme and Microbial Technology (2001), 29(2-3),
129-135
CODEN: EMTED2; ISSN: 0141-0229
PUBLISHER: Elsevier Science Ireland Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 135:256190

AB 1RGD tripeptide as the cellular adhesion factor was synthesized by a
combination of chemical and enzymic methods in this study. First of all,
Gly-Asp diamide was synthesized by a novel chemical method in three steps
including preparation of L-aspartic acid di-Me ester, chloroacetylation of
L-aspartic acid di-Me ester and ammonolysis of chloroacetyl L-aspartic
acid di-Me ester. Secondly, Porcine Pancreas Lipase (PPL) was used to
catalyze the synthesis of Benzyl-Arg-Gly-Asp diamide in water-organic
cosolvents systems. The reaction condition was optimized by examining the
main factors affecting the yield of the tripeptide. The optimal reaction
condition was set up as pH7.7, 15°C in 50% DMF for 8 h with the
maximum yield of 76.4%. It was also found that 50% DMSO was another
alternative with the tripeptide yield of 71.7%.

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AN 2001:537078 CAPLUS

DN 135:256190

IT 56-84-8, L-Aspartic acid, reactions 67-56-1, Methanol,
reactions 79-04-9, Chloroacetyl chloride 1336-21-6, Ammonium hydroxide
7664-41-7, Ammonia, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(lipase-catalyzed synthesis of RGD diamide in aqueous water-miscible organic
solvents)

L6 ANSWER 12 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2001:535025 CAPLUS
DOCUMENT NUMBER: 136:294520
TITLE: Synthesis of dimethyl fumarate catalyzed by
SO42-/TiO2/La3+ rare earth solid superacid
AUTHOR(S): Zhou, Jianwei
CORPORATE SOURCE: Department of Chemical Engineering, Pingyuan
University, Xinxiang, 453003, Peop. Rep. China
SOURCE: Henan Huagong (2001), (5), 12-14
CODEN: HEHUF3; ISSN: 1003-3467
PUBLISHER: Henansheng Shiyong Huaxue Gongye Keji Qingbao
Zhongxinzhuan
DOCUMENT TYPE: Journal

LANGUAGE: Chinese
OTHER SOURCE(S): CASREACT 136:294520
AB Di-Me fumarate was synthesized from fumaric acid and methanol with SO42-/TiO2/La3+ rare earth solid superacid as catalyst in dichloromethane solvent. Optimum synthetic conditions were determined: molar ratio of fumaric acid to methanol 6:1, dosage of catalyst 1.0 g/0.1 mol fumaric acid, time 4 h and solvent 25 mL. Yield of product reached above 94%.
AN 2001:535025 CAPLUS
DN 136:294520
AB Di-Me fumarate was synthesized from fumaric acid and methanol with SO42-/TiO2/La3+ rare earth solid superacid as catalyst in dichloromethane solvent. Optimum synthetic conditions were determined: molar ratio of fumaric acid to methanol 6:1, dosage of catalyst 1.0 g/0.1 mol fumaric acid, time 4 h and solvent 25 mL. Yield of product reached above 94%.
ST dimethyl fumarate synthesis fumaric acid methanol solid superacid catalysis
IT 67-56-1, Methanol, reactions 110-17-8, Fumaric acid, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis of di-Me fumarate catalyzed by SO42-/TiO2/La3+ rare earth solid superacid)

L6 ANSWER 13 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2001:461290 CAPLUS
DOCUMENT NUMBER: 136:279092
TITLE: Synthesis of dimethyl fumarate from maleic acid
AUTHOR(S): Cao, Kelin
CORPORATE SOURCE: Shanxi Taiming Chemical Engineering Co., Ltd., Taigu, 030800, Peop. Rep. China
SOURCE: Huagong Jinzhan (2001), 20(4), 33-34, 39
CODEN: HUJIEK; ISSN: 1000-6613
PUBLISHER: Huaxue Gongye Chubanshe
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
OTHER SOURCE(S): CASREACT 136:279092
AB Title compound was prepared from maleic acid, isomerized fumaric acid in the presence of ammonium persulfate as catalyst, further esterification with methanol in the presence of phosphotungstic acid as catalyst, giving product with yield over 94%. The effects of catalysts and catalyst amount on the reactions were studied.
AN 2001:461290 CAPLUS
DN 136:279092
AB Title compound was prepared from maleic acid, isomerized fumaric acid in the presence of ammonium persulfate as catalyst, further esterification with methanol in the presence of phosphotungstic acid as catalyst, giving product with yield over 94%. The effects of catalysts and catalyst amount on the reactions were studied.
IT 67-56-1, Methanol, reactions 110-16-7, Maleic acid, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis of di-Me fumarate from maleic acid)

L6 ANSWER 14 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2001:443163 CAPLUS
DOCUMENT NUMBER: 136:263409
TITLE: Synthesis of new chiral lipophilic macrocyclic oxo polyamines
AUTHOR(S): Yan, Qianshun; You, Jinsong; Xiang, Qingxiang; Yu, Xiaoqi; Xie, Rugang
CORPORATE SOURCE: Department of Chemistry, Sichuan University, Chengdu, 610064, Peop. Rep. China
SOURCE: Huaxue Yanjiu Yu Yingyong (2001), 13(2), 189-191
CODEN: HYYIFM; ISSN: 1004-1656

PUBLISHER: Huaxue Yanjiu Yu Yingyong Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
OTHER SOURCE(S): CASREACT 136:263409

AB New chiral lipophilic macrocyclic oxo polyamines were synthesized from L-glutamic acid or L-aspartic acid by esterifying with methanol, acylating with dodecanoyl chloride in chloroform in the presence of K₂CO₃ to obtain di-Me N-dodecanoyl-L-glutamate or L-aspartate, and transacylating with diethylenetriamine or triethylenetetraamine in methanol under refluxing. Their structures were characterized by MS, ¹H NMR, and elemental anal.

AN 2001:443163 CAPLUS

DN 136:263409

AB New chiral lipophilic macrocyclic oxo polyamines were synthesized from L-glutamic acid or L-aspartic acid by esterifying with methanol, acylating with dodecanoyl chloride in chloroform in the presence of K₂CO₃ to obtain di-Me N-dodecanoyl-L-glutamate or L-aspartate, and transacylating with diethylenetriamine or triethylenetetraamine in methanol under refluxing. Their structures were characterized by MS, ¹H NMR, and elemental anal.

L6 ANSWER 15 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2000:832322 CAPLUS

DOCUMENT NUMBER: 134:310893

TITLE: Synthesis of dimethyl fumarate catalyzed by composite solid superacid SO₄2-/TiO₂-Al₂O₃

AUTHOR(S): Cheng, Yonghao

CORPORATE SOURCE: Department of Chemistry, Hebei Normal University, Shijiazhuang, 050016, Peop. Rep. China

SOURCE: Riyong Huaxue Gongye (2000), 30(5), 12-13

CODEN: RHGOE8; ISSN: 1001-1803

PUBLISHER: Qinggongyebu Kexue Jishu Qingbao Yanjiuso

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

OTHER SOURCE(S): CASREACT 134:310893

AB Di-Me fumarate was synthesized from fumaric acid and methanol with composite solid superacid SO₄2-/TiO₂- Al₂O₃ as catalyst. Optimum synthetic conditions were determined: methanol:fumaric acid 6:1, time 4 h, and dosage of catalyst 3 g. Yield of product reached 91.4%.

AN 2000:832322 CAPLUS

DN 134:310893

AB Di-Me fumarate was synthesized from fumaric acid and methanol with composite solid superacid SO₄2-/TiO₂- Al₂O₃ as catalyst. Optimum synthetic conditions were determined: methanol:fumaric acid 6:1, time 4 h, and dosage of catalyst 3 g. Yield of product reached 91.4%.

IT 67-56-1, Methanol, reactions 110-17-8, Fumaric acid, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(synthesis of di-Me fumarate catalyzed by composite solid superacid SO₄2-/TiO₂-Al₂O₃)

L6 ANSWER 16 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2000:586307 CAPLUS

DOCUMENT NUMBER: 133:296252

TITLE: A simple method for the preparation of monomethyl esters of dicarboxylic acids by selective esterification of the nonconjugated carboxyl group in the presence of an aromatic or conjugated carboxyl group

AUTHOR(S): Ram, Ram N.; Meher, Nabin Kumar

CORPORATE SOURCE: Department of Chemistry, Indian Institute of Technology, New Delhi, 110016, India

SOURCE: Journal of Chemical Research, Synopses (2000), (6), 282-283

CODEN: JRPSDC; ISSN: 0308-2342
PUBLISHER: Science Reviews Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 133:296252
AB Various dicarboxylic acids were converted selectively into monomethyl esters in which the nonconjugated carboxyl group is selectively esterified in the presence of an aromatic or conjugated carboxyl group at room temperature (.apprx.25-27°) in MeOH using a catalytic amount of SOCl₂.
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
AN 2000:586307 CAPLUS
DN 133:296252
ST dicarboxylate methanol selective esterification; ester dicarboxylic selective prepn

L6 ANSWER 17 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1998:732350 CAPLUS
DOCUMENT NUMBER: 130:66049
TITLE: A selective method for the preparation of aliphatic methyl esters in the presence of aromatic carboxylic acids
AUTHOR(S): Rodriguez, A.; Nomen, M.; Spur, B. W.
CORPORATE SOURCE: Department of Cell Biology, Univ. of Medicine and Dentistry of New Jersey, Stratford, NJ, 08084, USA
SOURCE: Tetrahedron Letters (1998), 39(47), 8563-8566
CODEN: TELEAY; ISSN: 0040-4039
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 130:66049
AB 2,2-Dimethoxypropane, methanol and a catalytic amount of HCl selectively esterify aliphatic carboxylic acids in the presence of aromatic carboxylic acids at room temperature and in high yields.
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
AN 1998:732350 CAPLUS
DN 130:66049
AB 2,2-Dimethoxypropane, methanol and a catalytic amount of HCl selectively esterify aliphatic carboxylic acids in the presence of aromatic carboxylic acids at room temperature and in high yields.

L6 ANSWER 18 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1994:680006 CAPLUS
DOCUMENT NUMBER: 121:280006
ORIGINAL REFERENCE NO.: 121:51115a, 51118a
TITLE: A convenient and mild procedure for the preparation of hydroxy esters from lactones and hydroxy acids
AUTHOR(S): Anand, R. C.; Selvapalam, N.
CORPORATE SOURCE: Dep. Chem., Indian Inst. Technol., New Delhi, 110016, India
SOURCE: Synthetic Communications (1994), 24(19), 2743-7
CODEN: SYNCAV; ISSN: 0039-7911
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 121:280006
AB An alc. solution of lactones and hydroxy acids stored on Amberlyst-15 results in the formation of corresponding hydroxy esters in high yields.
AN 1994:680006 CAPLUS
DN 121:280006
OREF 121:51115a, 51118a
IT 64-17-5, Ethanol, reactions 67-56-1, Methanol, reactions
79-14-1, reactions 87-41-2, 1(3H)-Isobenzofuranone 87-69-4, reactions

96-48-0 119-84-6 502-44-3, 2-Oxepanone 542-28-9 553-86-6,
2(3H)-Benzofuranone 828-01-3 4026-18-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(mild procedure for the preparation of hydroxy esters from lactones and
hydroxy acids)

L6 ANSWER 19 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1994:269626 CAPLUS
DOCUMENT NUMBER: 120:269626
ORIGINAL REFERENCE NO.: 120:47747a,47750a
TITLE: Catalytic synthesis of dimethyl fumarate with ferric
chloride
AUTHOR(S): Yu, Shanxin; Lei, Huanwen
CORPORATE SOURCE: Dep. Chem., Hunan Norm. Univ., Changsha, 410081, Peop.
Rep. China
SOURCE: Huaxue Shiji (1993), 15(6), 374, 376
CODEN: HUSHDR; ISSN: 0258-3283
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
OTHER SOURCE(S): CASREACT 120:269626
AB Ferric chloride (FeCl₃·6H₂O) can be used as a catalyst for the
esterification reaction of fumaric acid instead of sulfuric acid. The
conditions in synthesis of di-Me fumarate catalyzed with FeCl₃·6H₂O
are described. The advantages of this method are: simple procedure, mild
reaction conditions, non-corrosive, less pollution and purer product.
AN 1994:269626 CAPLUS
DN 120:269626
OREF 120:47747a,47750a
IT Esterification catalysts
(ferric chloride, for fumaric acid with methanol)

L6 ANSWER 20 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 1993:626419 CAPLUS
DOCUMENT NUMBER: 119:226419
ORIGINAL REFERENCE NO.: 119:40439a,40442a
TITLE: Method for preparing amino acid esters involving
(continuous) addition and distillation of alcohols
INVENTOR(S): Takemoto, Tadashi; Takeda, Hideo
PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Japan
SOURCE: Eur. Pat. Appl., 4 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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EP 544205	A2	19930602	EP 1992-119898	19921123
EP 544205	A3	19930728		
EP 544205	B1	19950906		
R: BE, CH, DE, FR, GB, IT, LI, NL				
JP 05148199	A	19930615	JP 1991-314585	19911128
CA 2084012	A1	19930529	CA 1992-2084012	19921127
US 5424476	A	19950613	US 1994-194635	19940210
PRIORITY APPLN. INFO.:			JP 1991-314585	A 19911128
			US 1992-982123	B1 19921125

OTHER SOURCE(S): CASREACT 119:226419
AB Amino acid esters were prepared by heating a mixture of an amino acid, an
alc., and H₂SO₄ with simultaneous addition of liquid or gaseous alc. to the
reaction mixture and distillation of the same. Thus, H-Phe-OH in MeOH
containing cat.
H₂SO₄ was kept at 85° for 4 h with simultaneous addition and distillation of

MeOH to give 98.6% H-Phe-OMe. Simple reflux of the above reactants gave a yield of only 83-2% product.

AN 1993:626419 CAPLUS

DN 119:226419

OREF 119:40439a, 40442a

IT 56-41-7P, L-Alanine, reactions 56-84-8P, H-Asp-OH, reactions 63-91-2P, L-Phenylalanine, reactions 72-18-4P, L-Valine, reactions

RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(esterification of, with methanol, continuous distillation and addition of alc. in)

L6 ANSWER 21 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1993:580649 CAPLUS

DOCUMENT NUMBER: 119:180649

ORIGINAL REFERENCE NO.: 119:32287a, 32290a

TITLE: Preparation of pyrrolidine derivatives from amino acids.

INVENTOR(S): Hirabayashi, Satoshi; Ike, Kazuo; Zanka, Atuhiko; Kawakami, Takeshi; Ichihara, Masaharu

PATENT ASSIGNEE(S): Fujisawa Pharmaceutical Co., Ltd., Japan

SOURCE: PCT Int. Appl., 20 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

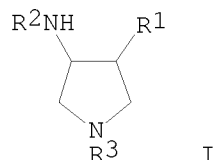
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9220652	A1	19921126	WO 1992-JP648	19920520
W: JP, US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE				
JP 04346971	A	19921202	JP 1991-219431	19910521
PRIORITY APPLN. INFO.:			JP 1991-219431	A 19910521
OTHER SOURCE(S):	CASREACT 119:180649; MARPAT 119:180649			

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AB Reaction of R₂-NH-CH(CO₂-R₅)-CH₂-CO₂-R₄ (R₂, R₄, R₅ = protecting group) with R₁-X [R₁ = alkyl; X = leaving group] gives R₂-NH-CH(CO₂-R₅)-CH(R₁)-CO₂-R₄, whose reduction gives R₂-NH-CH(CH₂OH)-CH(R₁)-CH₂OH, whose condensation with H₂N-R₃ (R₃ = protecting group) gives pyrrolidine derivs. I, which are optionally deprotected. Di-Me (S)-aspartate hydrochloride (preparation given) in CH₂Cl₂ was mixed with a saturated aqueous solution of NaHCO₃, tert-di-Bu dicarbonate

was added, and the resulting mixture was allowed to stand overnight to give di-Me (S)-N-tert-butoxycarbonylaspartate, which was treated with MeI in THF containing hexamethyldisilazane and BuLi at -40 to -30° for 2 h to give, after adjusting to pH 7-8 with 1N HCl, a 1:1 mixture of threo- and erythro-(2S)-N-(tert-butoxycarbonyl)-3-methylaspartic acid di-Me ester, which was reduced with NaBH₄ in THF-MeOH at 35-50° for 4 h to give a diastereomeric mixture of (2S)-N-(tert-butoxycarbonylamino)-3-methyl-1,4-butanediol, whose dimesylate ester was heated with benzylamine at

30-50° for 3 days to give 74% a diastereomeric mixture of 1-benzyl-3-tert-butoxycarbonylamino-4-methylpyrrolidine. (3S,4S)-1-benzyl-3-tert-butoxycarbonylamino-4-methylpyrrolidine in MeOH-H₂O containing HCO₂NH₄ was hydrogenolyzed over Pd/C to give (3S,4S)-3-tert-butoxycarbonylamino-4-methylpyrrolidine, which in MeOH-EtOAc was treated with HCl in EtOAc at room temperature for 2 h and then

at

35° for 2 h to give (3S,4S)-3-amino-4-methylpyrrolidine.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AN 1993:580649 CAPLUS

DN 119:180649

OREF 119:32287a,32290a

IT 56-84-8, (S)-Aspartic acid, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(esterification of, with methanol)

L6 ANSWER 22 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1992:612978 CAPLUS

DOCUMENT NUMBER: 117:212978

ORIGINAL REFERENCE NO.: 117:36823a,36826a

TITLE: Process for preparing diketopiperazine derivatives

INVENTOR(S): Toshihisa, Kato; Tadashi, Takemoto

PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Japan

SOURCE: Eur. Pat. Appl., 5 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

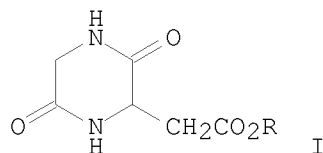
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 493812	A1	19920708	EP 1991-122307	19911227
R: BE, DE, FR, GB, NL				
JP 04234374	A	19920824	JP 1990-418592	19901227
PRIORITY APPLN. INFO.:			JP 1990-418592	A 19901227
OTHER SOURCE(S):		CASREACT 117:212978; MARPAT 117:212978		

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AB Diketopiperazines I (R = C1-6-alkyl) were prepared by treating (chloroacetyl)aspartic acid with NH₃, esterifying the resulting H-Gly-Asp-OH with an alkanol, and cyclizing the resulting diester neutral or weakly basic water or in an alkanol-water solvent mixture. Thus, L-aspartic acid was acylated with ClCH₂C(=O)Cl in aqueous NaOH to give 62% ClCH₂CO-L-Asp-OH, which was treated NH₃ in water to H-Gly-Asp-OH. The latter was esterified with MeOH containing HCl to give 87% H-Gly-Asp(OMe)-OMe, which was cyclized in water at pH 7.0 at 60° for 3 h to give 72% I (R = Me).

AN 1992:612978 CAPLUS

DN 117:212978

OREF 117:36823a,36826a

IT 4685-12-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(preparation and esterification of, with methanol)

L6 ANSWER 23 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1992:147458 CAPLUS

DOCUMENT NUMBER: 116:147458

ORIGINAL REFERENCE NO.: 116:24825a,24828a

TITLE: Analysis of keto acids as their methyl esters of
2,4-dinitrophenylhydrazone derivatives by gas
chromatography and gas chromatography-mass
spectrometry

AUTHOR(S): Navarro-Gonzalez, Rafael; Negron-Mendoza, Alicia;
Albarran, Guadalupe

CORPORATE SOURCE: Inst. Cienc. Nucl., UNAM, Mexico City, 04510, Mex.

SOURCE: Journal of Chromatography (1991), 587(2), 247-54

CODEN: JOCRAM; ISSN: 0021-9673

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 116:147458

AB The anal. of keto acids via reaction with 2,4-dinitrophenylhydrazine (DNP)
and esterification with methanol-hydrochloric acid by gas
chromatog. and gas chromatog.-mass spectrometry is described. The derivs.
formed (DNPH) are moderately stable and are easy to analyze. The separation of
eighteen biol. important keto acids is described. The utility of the
method in electron impact mass spectra of DNPH derivs. is presented.

AN 1992:147458 CAPLUS

DN 116:147458

OREF 116:24825a,24828a

AB The anal. of keto acids via reaction with 2,4-dinitrophenylhydrazine (DNP)
and esterification with methanol-hydrochloric acid by gas
chromatog. and gas chromatog.-mass spectrometry is described. The derivs.
formed (DNPH) are moderately stable and are easy to analyze. The separation of
eighteen biol. important keto acids is described. The utility of the
method in electron impact mass spectra of DNPH derivs. is presented.

L6 ANSWER 24 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1989:632040 CAPLUS

DOCUMENT NUMBER: 111:232040

ORIGINAL REFERENCE NO.: 111:38537a,38540a

TITLE: (R,R)-,O,O'-(2,2-Dichlorovinyl)tartaric acid: an
easily synthesized optically pure vinylether. A new
synthesis of (R,R)-O,O'-diethyltartaric acid

AUTHOR(S): Uray, Georg; Lindner, Wolfgang; Reiter, Franz

CORPORATE SOURCE: Inst. Org. Chem., Karl-Franzens Univ., Graz, A-8010,
Austria

SOURCE: Synthesis (1989), (3), 194-6

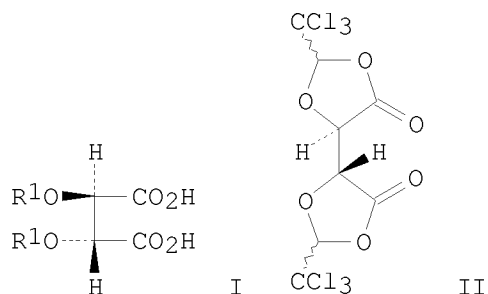
CODEN: SYNTBF; ISSN: 0039-7881

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 111:232040

GI



AB (R,R)-Tartaric acid diethers I (R1 = CH:CCl2, Et) were prepared (R,R)-Tartaric acid reacted with CCl3CHO and H2SO4 to give bis-dioxolanone II, and the latter was treated with Zn in HOAc to give I (R1 = CH:CCl2). The hydrogenation at I (R1 = CH:CCl2) over Pd gave I (R1 = Et).

AN 1989:632040 CAPLUS

DN 111:232040

OREF 111:38537a,38540a

IT 123848-36-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and ring cleavage reactions of, with methanol and ammonia)

L6 ANSWER 25 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1989:114749 CAPLUS

DOCUMENT NUMBER: 110:114749

ORIGINAL REFERENCE NO.: 110:18921a,18924a

TITLE: Stability and stereochemistry in the decomposition of pentasubstituted 1-pyrazolines controlled by interactions between bulky vicinal substituents

AUTHOR(S): Nakano, Yoshihiko; Hamaguchi, Masashi; Nagai, Toshikazu

CORPORATE SOURCE: Coll. Gen. Educ., Osaka Univ., Osaka, 560, Japan

SOURCE: Journal of Organic Chemistry (1989), 54(5), 1135-44

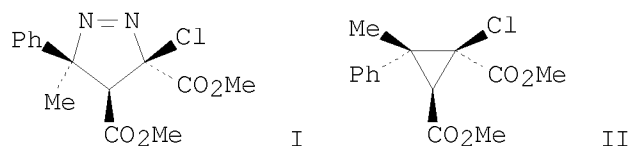
CODEN: JOCEAH; ISSN: 0022-3263

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 110:114749

GI



AB 1,2-Diacyl-1-chloroethylenes [e.g., (Z)- and (E)-MeO2CCCCl:CHCO2Me] reacted with disubstituted diazomethanes (e.g., Me2C:N2, MeCPh:N2, Ph2C:N2) to give pyrazolines and cyclopropanes (e.g., I and II, resp.). The thermal decomposition of the isolated pyrazolines was carried out. The thermal stability of the pyrazolines increased with the variation of the substituents at C5 in the order biphenylene < Ph, Ph < Ph, Me < Me, Me, while pyrazolines bearing bulky vicinal substituents at C3, C4, and C5 in the cis configuration were substantially more stable than other isomers. This abnormal stability is explained by the reasonable expectation that bulky C4 substituents partly inhibit conformations of the conjugated substituents at C3 or C5 favorable for the decomposition, which increases the

activation energy. Although most of the thermolyses of the pyrazolines to cyclopropanes gave products with the same configuration as the starting materials, some pyrazolines bearing bulky vicinal cis groups gave mixts. of stereoisomeric cyclopropanes. The thermolysis mechanism is discussed.

AN 1989:114749 CAPLUS

DN 110:114749

OREF 110:18921a,18924a

IT 118658-08-5P 118658-10-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and esterification of, with methanol)

L6 ANSWER 26 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1988:6374 CAPLUS

DOCUMENT NUMBER: 108:6374

ORIGINAL REFERENCE NO.: 108:1215a,1218a

TITLE: Hexahydropyrroloindoles. Attempts to synthesize 2-indolyl thio ethers

AUTHOR(S): Droste, Holger; Wieland, Theodor

CORPORATE SOURCE: Max-Planck-Inst., Med. Forsch., Heidelberg, D-6900, Fed. Rep. Ger.

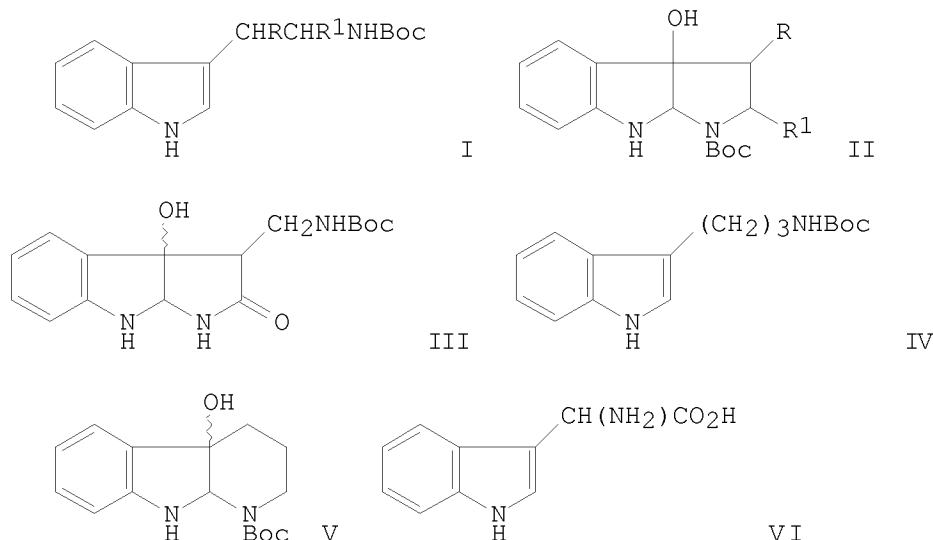
SOURCE: Liebigs Annalen der Chemie (1987), (11), 901-10
CODEN: LACHDL; ISSN: 0170-2041

DOCUMENT TYPE: Journal

LANGUAGE: German

OTHER SOURCE(S): CASREACT 108:6374

GI



AB The sensitized photochem. oxidation of tryptamines I (Boc = Me3CO2C; R = CN, CO2H, CO2Me, R1 = H; R = H, R1 = CO2H, H) gave hexahydropyrroloindoles II. The photochem. oxidation of I (R = CONH2, R1 = H) gave ketone III, whereas homotryptamine IV gave hexahydropyridindole V. No azetidine formation from indolylglycine VI was observed. Attempts to synthesize title ethers from tryptamines and sulfonyl chlorides of cysteine derivs. failed.

AN 1988:6374 CAPLUS

DN 108:6374

OREF 108:1215a,1218a

IT 10184-94-8P

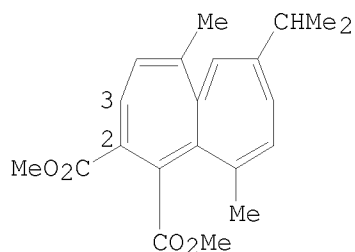
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and esterification with methanol)

L6 ANSWER 27 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

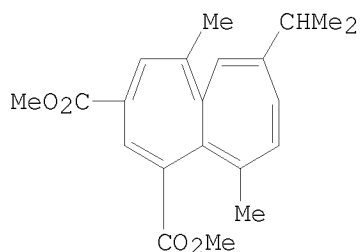
ACCESSION NUMBER: 1986:590448 CAPLUS
DOCUMENT NUMBER: 105:190448
ORIGINAL REFERENCE NO.: 105:30727a,30730a
TITLE: Chemistry of 2-bromo-3-(trichloromethyl)succinic anhydride and dimethyl ester: preparation of various halogenated succinic, maleic, fumaric and malic acid derivatives
AUTHOR(S): Nedelec, J. Y.; Blanchet, D.; Lefort, D.; Biellmann, J. F.
CORPORATE SOURCE: Lab. Electrochim., Catal. Synth. Org., CNRS, Thiais, 94320, Fr.
SOURCE: Tetrahedron (1985), 41(20), 4503-8
CODEN: TETRAB; ISSN: 0040-4020
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 105:190448
AB Various reactions of title adducts of BrCCl₃ with maleic anhydride and di-Me maleate or fumarate were studied. Thus, treatment of erythro-MeO₂CCHBrCH(CCl₃)CO₂Me with AcONa in AcOH at room temperature for 24 h afforded di-Me 2-(trichloromethyl)maleate, along with the corresponding fumarate and MeO₂CCHBrC(CO₂Me):CCl₂.
AN 1986:590448 CAPLUS
DN 105:190448
OREF 105:30727a,30730a
IT 105048-49-5P 105048-50-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and esterification with methanol)

L6 ANSWER 28 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1986:442061 CAPLUS
DOCUMENT NUMBER: 105:42061
ORIGINAL REFERENCE NO.: 105:6957a,6960a
TITLE: σ -Skeletal rearrangement of heptalenes: thermal transformation of heptalene-1,2-dicarboxylates into heptalene-1,3-dicarboxylates
AUTHOR(S): Bernhard, Werner; Bruegger, Paul; Daly, John J.; Englert, Gerhard; Schoenholzer, Peter; Hansen, Hans Juergen
CORPORATE SOURCE: Cent. Res. Units, F. Hoffmann-La Roche and Co., Ltd., Basel, CH-4002, Switz.
SOURCE: Helvetica Chimica Acta (1985), 68(4), 1010-24
CODEN: HCACAV; ISSN: 0018-019X
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 105:42061
GI



I



II

AB Di-Me 1,2-heptalenedicarboxylates rearrange to 1,3-dicarboxylates above 200°. Labeling expts. indicate that the rearrangement of I occurs by interchange of C-2 and C-3 in the heptalene skeleton. Thus, the I → II process is the 1st thermal σ -skeletal rearrangement of heptalenes. X-ray analyses of I and II are discussed.

AN 1986:442061 CAPLUS

DN 105:42061

OREF 105:6957a,6960a

IT 142-45-0

RL: RCT (Reactant); RACT (Reactant or reagent)
(esterification of, with labeled methanol)

L6 ANSWER 29 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1986:206693 CAPLUS

DOCUMENT NUMBER: 104:206693

ORIGINAL REFERENCE NO.: 104:32741a,32744a

TITLE: Use of bromine in methanol - preparation of methyl esters

AUTHOR(S): Vairamani, M.; Rao, G. K. Viswanadha

CORPORATE SOURCE: Mass Spectrom. Div., Reg. Res. Lab., Hyderabad, 500 007, India

SOURCE: Indian Journal of Chemistry, Section B: Organic Chemistry Including Medicinal Chemistry (1985), 24B(6), 691

CODEN: IJSBDB; ISSN: 0376-4699

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 104:206693

AB Methyl esters are prepared in 92-98% yield and 95-98% purity when RCO₂H [R = PhCH₂, Ph, HO₂CCH₂CH₂, Me(CH₂)_n; n = 10, 12, 14] with Br₂ in MeOH. The reaction is light and/or HBr catalyzed. An acid catalyzed mechanism for the reaction is indicated.

AN 1986:206693 CAPLUS

DN 104:206693

OREF 104:32741a,32744a

TI Use of bromine in methanol - preparation of methyl esters

ST methanol esterification bromine

IT Esterification

(of methanol-bromine as reagent for)

IT 7726-95-6, uses and miscellaneous

RL: CAT (Catalyst use); USES (Uses)

(catalyst, for esterification of carboxylic acids with methanol)

IT 93-58-3P 101-41-7P 106-65-0P 111-82-0P 112-39-0P 124-10-7P

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of, bromine-methanol reagent for)

L6 ANSWER 30 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1985:470927 CAPLUS

DOCUMENT NUMBER: 103:70927

ORIGINAL REFERENCE NO.: 103:11405a,11408a

TITLE: Synthesis of dialkyl esters of succinic acid

AUTHOR(S): Amirkhanyan, M. M.; Elanyan, M. F.

CORPORATE SOURCE: USSR

SOURCE: Trudy IREA (1984), 46, 7-10

CODEN: TKRKAM; ISSN: 0371-876X

DOCUMENT TYPE: Journal

LANGUAGE: Russian

OTHER SOURCE(S): CASREACT 103:70927

AB Direct esterification of HO₂CCH₂CH₂CO₂H (I) with 4 equiv MeOH and EtOH in 50 mL C₆H₆ containing 40 g KU-2 + 8 catalyst per mol I at 110° for 10 h and 140° for 6 h, resp., gave 83.2% di-Me and 96.5% di-Et

succinate, resp.
 AN 1985:470927 CAPLUS
 DN 103:70927
 OREF 103:11405a,11408a
 IT Process optimization
 (for esterification of succinic acid with methanol and
 ethanol)
 IT Esterification
 (of succinic acid with methanol and ethanol, optimization of)

L6 ANSWER 31 OF 31 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 1983:452585 CAPLUS
 DOCUMENT NUMBER: 99:52585
 ORIGINAL REFERENCE NO.: 99:8211a,8212a
 TITLE: Reactions of cyclic anhydrides. Part IX. Facile
 esterification of carboxylic acids with
 organophosphorus reagents. Novel application of
 alkylphosphoric esters (APE)
 AUTHOR(S): Balasubramaniyan, V.; Bhatia, V. G.; Wagh, S. B.
 CORPORATE SOURCE: Sci. Res. Cent., H.P.T. Arts and R.Y.K. Sci. Coll.,
 Nasik, 422 005, India
 SOURCE: Tetrahedron (1983), 39(9), 1475-85
 CODEN: TETRAB; ISSN: 0040-4020
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 99:52585
 AB The APE reagent, prepared from P4010 and excess alkanol, was used for the
 esterification of carboxylic acids (.apprx.50), including maleanilic,
 fumarilic, and succinilic acids.
 AN 1983:452585 CAPLUS
 DN 99:52585
 OREF 99:8211a,8212a
 IT 16752-60-6
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reagent from methanol and, for esterification)

=> select an 16 1-31
 E1 THROUGH E62 ASSIGNED

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FULL ESTIMATED COST	122.73	246.08
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	ENTRY	SESSION
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L8 31 L7 AND L3

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	ENTRY	SESSION
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L9      387445 METHANOL
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=> s methanol/cn
L10     1 METHANOL/CN
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=> d rn
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L10  ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2009 ACS on STN
RN   67-56-1  REGISTRY
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FULL ESTIMATED COST                11.91      259.43

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)  SINCE FILE      TOTAL
                                   ENTRY      SESSION
CA SUBSCRIBER PRICE                0.00      -25.42
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L12     181 L3 (L) L11
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L13 29 L12 AND L7

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NUMBER OF REACTIONS IN SPATH			1
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AN			1

L13	ANSWER 2 OF 29	CASREACT	COPYRIGHT 2009 ACS on STN
NUMBER OF HIT REACTIONS			1
NUMBER OF REACTIONS IN PATH			1
NUMBER OF REACTIONS IN SPATH			1
FIELD			COUNT
RX(1)			3
AN			1

L13	ANSWER 3 OF 29	CASREACT	COPYRIGHT 2009 ACS on STN
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NUMBER OF REACTIONS IN PATH			2
NUMBER OF REACTIONS IN SPATH			2
FIELD			COUNT
RX(1)			3
RX(2)			3
AN			1

L13	ANSWER 4 OF 29	CASREACT	COPYRIGHT 2009 ACS on STN
NUMBER OF HIT REACTIONS			1
NUMBER OF REACTIONS IN PATH			1
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FIELD			COUNT
RX(8)			3
AN			1

L13	ANSWER 5 OF 29	CASREACT	COPYRIGHT 2009 ACS on STN
NUMBER OF HIT REACTIONS			1
NUMBER OF REACTIONS IN PATH			1
NUMBER OF REACTIONS IN SPATH			1
FIELD			COUNT
RX(14)			3
AN			1

L13	ANSWER 6 OF 29	CASREACT	COPYRIGHT 2009 ACS on STN
NUMBER OF HIT REACTIONS			1
NUMBER OF REACTIONS IN PATH			1
NUMBER OF REACTIONS IN SPATH			1
FIELD			COUNT
RX(1)			3
AN			1

L13	ANSWER 7 OF 29	CASREACT	COPYRIGHT 2009 ACS on STN
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NUMBER OF HIT REACTIONS	1
NUMBER OF REACTIONS IN PATH	1
NUMBER OF REACTIONS IN SPATH	1
FIELD	COUNT
RX(1)	3
AN	1

L13 ANSWER 8 OF 29 CASREACT	COPYRIGHT 2009 ACS on STN
NUMBER OF HIT REACTIONS	4
NUMBER OF REACTIONS IN PATH	4
NUMBER OF REACTIONS IN SPATH	4
FIELD	COUNT
RX(19)	3
RX(20)	3
RX(23)	3
RX(24)	3
AN	1

L13 ANSWER 9 OF 29 CASREACT	COPYRIGHT 2009 ACS on STN
NUMBER OF HIT REACTIONS	1
NUMBER OF REACTIONS IN PATH	1
NUMBER OF REACTIONS IN SPATH	1
FIELD	COUNT
RX(1)	3
AN	1

L13 ANSWER 10 OF 29 CASREACT	COPYRIGHT 2009 ACS on STN
NUMBER OF HIT REACTIONS	1
NUMBER OF REACTIONS IN PATH	1
NUMBER OF REACTIONS IN SPATH	1
FIELD	COUNT
RX(1)	3
AN	1

L13 ANSWER 11 OF 29 CASREACT	COPYRIGHT 2009 ACS on STN
NUMBER OF HIT REACTIONS	2
NUMBER OF REACTIONS IN PATH	1
NUMBER OF REACTIONS IN SPATH	2
FIELD	COUNT
RX(2)	3
RX(3)	3
AN	1

L13 ANSWER 12 OF 29 CASREACT	COPYRIGHT 2009 ACS on STN
NUMBER OF HIT REACTIONS	2
NUMBER OF REACTIONS IN PATH	1
NUMBER OF REACTIONS IN SPATH	2
FIELD	COUNT
RX(2)	3
RX(9)	3
AN	1

L13 ANSWER 13 OF 29 CASREACT	COPYRIGHT 2009 ACS on STN
NUMBER OF HIT REACTIONS	2
NUMBER OF REACTIONS IN PATH	1
NUMBER OF REACTIONS IN SPATH	2
FIELD	COUNT

RX(3)	4
RX(5)	4
AN	1

L13	ANSWER 14 OF 29	CASREACT	COPYRIGHT 2009 ACS on STN
	NUMBER OF HIT REACTIONS		1
	NUMBER OF REACTIONS IN PATH		1
	NUMBER OF REACTIONS IN SPATH		1
	FIELD		COUNT
	RX(1)		3
	AN		1

L13	ANSWER 15 OF 29	CASREACT	COPYRIGHT 2009 ACS on STN
	NUMBER OF HIT REACTIONS		2
	NUMBER OF REACTIONS IN PATH		2
	NUMBER OF REACTIONS IN SPATH		2
	FIELD		COUNT
	RX(7)		4
	RX(9)		4
	AN		1

L13	ANSWER 16 OF 29	CASREACT	COPYRIGHT 2009 ACS on STN
	NUMBER OF HIT REACTIONS		1
	NUMBER OF REACTIONS IN PATH		1
	NUMBER OF REACTIONS IN SPATH		1
	FIELD		COUNT
	RX(18)		4
	AN		1

L13	ANSWER 17 OF 29	CASREACT	COPYRIGHT 2009 ACS on STN
	NUMBER OF HIT REACTIONS		1
	NUMBER OF REACTIONS IN PATH		1
	NUMBER OF REACTIONS IN SPATH		1
	FIELD		COUNT
	RX(8)		4
	AN		1

L13	ANSWER 18 OF 29	CASREACT	COPYRIGHT 2009 ACS on STN
	NUMBER OF HIT REACTIONS		1
	NUMBER OF REACTIONS IN PATH		1
	NUMBER OF REACTIONS IN SPATH		1
	FIELD		COUNT
	RX(1)		3
	AN		1

L13	ANSWER 19 OF 29	CASREACT	COPYRIGHT 2009 ACS on STN
	NUMBER OF HIT REACTIONS		1
	NUMBER OF REACTIONS IN PATH		1
	NUMBER OF REACTIONS IN SPATH		1
	FIELD		COUNT
	RX(2)		3
	AN		1

L13	ANSWER 20 OF 29	CASREACT	COPYRIGHT 2009 ACS on STN
	NUMBER OF HIT REACTIONS		3
	NUMBER OF REACTIONS IN PATH		1

NUMBER OF REACTIONS IN SPATH	2
FIELD	COUNT
RX(1)	4
RX(9)	4
RX(16)	4
AN	1

L13 ANSWER 21 OF 29 CASREACT	COPYRIGHT 2009 ACS on STN
NUMBER OF HIT REACTIONS	3
NUMBER OF REACTIONS IN PATH	1
NUMBER OF REACTIONS IN SPATH	2
FIELD	COUNT
RX(3)	4
RX(6)	4
RX(8)	4
AN	1

L13 ANSWER 22 OF 29 CASREACT	COPYRIGHT 2009 ACS on STN
NUMBER OF HIT REACTIONS	3
NUMBER OF REACTIONS IN PATH	2
NUMBER OF REACTIONS IN SPATH	3
FIELD	COUNT
RX(23)	3
RX(57)	3
RX(81)	3
AN	1

L13 ANSWER 23 OF 29 CASREACT	COPYRIGHT 2009 ACS on STN
NUMBER OF HIT REACTIONS	1
NUMBER OF REACTIONS IN PATH	1
NUMBER OF REACTIONS IN SPATH	1
FIELD	COUNT
RX(3)	4
AN	1

L13 ANSWER 24 OF 29 CASREACT	COPYRIGHT 2009 ACS on STN
NUMBER OF HIT REACTIONS	1
NUMBER OF REACTIONS IN PATH	1
NUMBER OF REACTIONS IN SPATH	1
FIELD	COUNT
RX(13)	4
AN	1

L13 ANSWER 25 OF 29 CASREACT	COPYRIGHT 2009 ACS on STN
NUMBER OF HIT REACTIONS	3
NUMBER OF REACTIONS IN PATH	2
NUMBER OF REACTIONS IN SPATH	3
FIELD	COUNT
RX(4)	3
RX(5)	3
RX(14)	3
AN	1

L13 ANSWER 26 OF 29 CASREACT	COPYRIGHT 2009 ACS on STN
NUMBER OF HIT REACTIONS	2
NUMBER OF REACTIONS IN PATH	1
NUMBER OF REACTIONS IN SPATH	2

FIELD	COUNT
RX(14)	3
RX(25)	3
AN	1

L13 ANSWER 27 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

NUMBER OF HIT REACTIONS	2
NUMBER OF REACTIONS IN PATH	2
NUMBER OF REACTIONS IN SPATH	2
FIELD	COUNT
RX(3)	4
RX(9)	4
AN	1

L13 ANSWER 28 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

NUMBER OF HIT REACTIONS	1
NUMBER OF REACTIONS IN PATH	1
NUMBER OF REACTIONS IN SPATH	1
FIELD	COUNT
RX(1)	3
AN	1

L13 ANSWER 29 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

NUMBER OF HIT REACTIONS	4
NUMBER OF REACTIONS IN PATH	4
NUMBER OF REACTIONS IN SPATH	4
FIELD	COUNT
RX(5)	3
RX(16)	3
RX(26)	3
RX(61)	3
AN	1

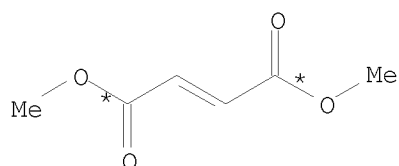
=> d ibib abs hit 1-29

L13 ANSWER 1 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 144:369644 CASREACT
 TITLE: Catalytic synthesis of dimethyl fumarate with phosphotungstic acid
 AUTHOR(S): Li, Yangshu; Yu, Bin
 CORPORATE SOURCE: Science School, Nanjing University of Technology, Nanjing, 210009, Peop. Rep. China
 SOURCE: Huagong Shikan (2004), 18(2), 57-58
 CODEN: HUSHFT; ISSN: 1002-154X
 PUBLISHER: Huagong Shikan Zazhishe
 DOCUMENT TYPE: Journal
 LANGUAGE: Chinese

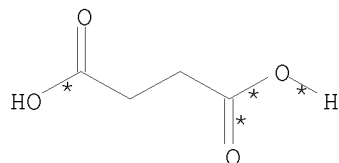
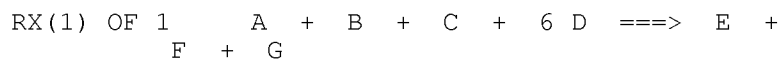
AB Phosphotungstic acid was used as an esterification catalyst for synthesizing di-Me fumarate (DMF), with maleic anhydride as the starting material and potassium bromate KBrO₃ as the isomerizing agent. This method has the advantages of requiring small amount of catalyst with high catalysis activity, resulting in shorter reaction time and high DMF yield (typically over 90%). The purification procedure of DMF is simple.

RX(2) OF 3 ...2 D + B ==> E

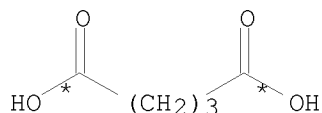


AB The recovering method comprises: (1) neutralizing the waste alkali liquor of caprolactam preparation to sep. aqueous phase and organic phase and oxidizing the organic substance in the organic phase with an oxidant selected from HNO₃, H₂O₂, HClO₄, or KMnO₄, (2) transferring the reaction product of the dibasic acid into a two-segments concentration unit to recover monobasic acid and HNO₃ in the

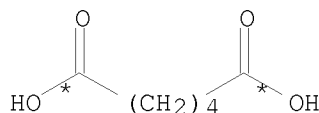
first segment and decompose the residual HNO3 and nitro compound in the second segment to obtain crude C4-6 dibasic acid, (3) esterifying with C1-4 alc. in the presence of catalyst, such as H2SO4, H3PO4, HNO3, sulfonic acid, and cationic exchange resin, and distilling



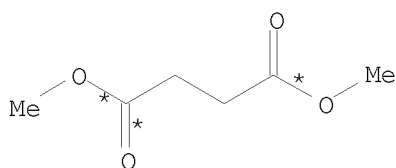
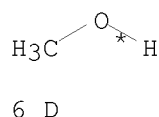
A



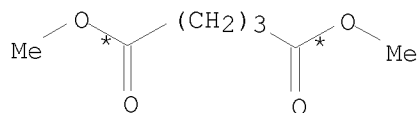
B



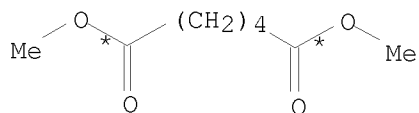
C



E
YIELD 94%



F
YIELD 96%



G
YIELD 90%

RX(1) RCT A 110-15-6, B 110-94-1, C 124-04-9, D 67-56-1
 PRO E 106-65-0, F 1119-40-0, G 627-93-0
 CON SUBSTAGE(1) 2 hours, 90 deg C
 SUBSTAGE(2) 4 hours, 120 deg C
 NTE yield depends on reaction conditions
 AN 142:176440 CASREACT

L13 ANSWER 3 OF 29 CASREACT COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 141:259007 CASREACT
 TITLE: Synthesis of chiral phosphoantigens and their activity
 in $\gamma\delta$ T cell stimulation
 AUTHOR(S): Song, Yongcheng; Zhang, Yonghui; Wang, Hong; Raker,
 Amy; Sanders, John; Broderick, Erin; Clark, Allen;
 Morita, Craig; Oldfield, Eric
 CORPORATE SOURCE: Department of Chemistry, University of Illinois at
 Urbana-Champaign, Urbana, IL, 61801, USA
 SOURCE: Bioorganic & Medicinal Chemistry Letters (2004),
 14(17), 4471-4477

PUBLISHER: Elsevier B.V.

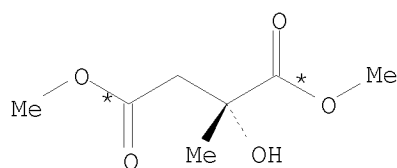
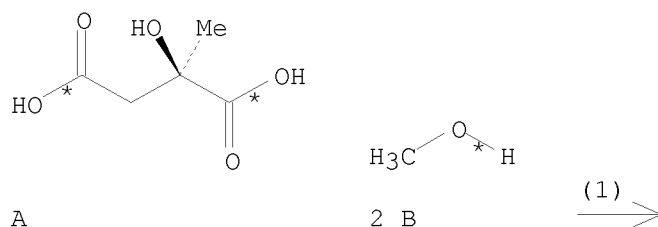
DOCUMENT TYPE: Journal

LANGUAGE: English

AB $\gamma\delta$ T cells expressing V γ 2V δ 2 T cell receptors are activated by a broad range of phosphorus-containing small mols., termed phosphoantigens, and are of interest in the context of the chemotherapy of B cell malignancies. Here, we report the synthesis of four pairs of chiral phosphoantigens: the bromohydrins of isopentenyl diphosphate (PhosphostimTM), the epoxides of isopentenyl diphosphate (EIPP); and the corresponding bromohydrin and epoxide analogs of but-3-enyl diphosphate. The ability of each compound to stimulate human V γ 2V δ 2 T cells was determined by TNF- α release and cell proliferation. In these assays, the (R)-bromohydrin diphosphates, were, on average, about twice as active as the (S)-bromohydrin diphosphates. In contrast, the (S)-form of EIPP was about twice as active as (R)-EIPP. The activities of the epoxy but-3-enyl diphosphates were both very low. These results suggest that chiral phosphoantigens, as opposed to racemic mixts., may have utility in immunotherapy.

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

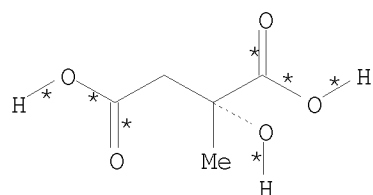
RX(1) OF 27 A + 2 B ==> C



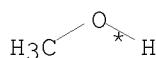
C
YIELD 99%

RX(1) RCT A 6236-10-8, B 67-56-1
RGT D 7719-09-7 SOCl₂
PRO C 81426-68-8
NTE enantiomer prepared similarly

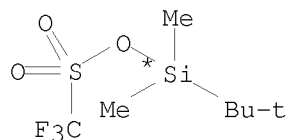
RX(2) OF 27 A + 2 B + E ==> F...



A

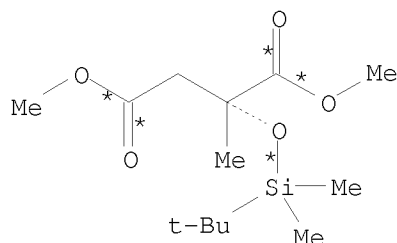


2 B



E

(2) \longrightarrow



F
YIELD 84%

RX(2) RCT A 6236-10-8, B 67-56-1

STAGE(1)

RGT D 7719-09-7 SOC12

STAGE(2)

RCT E 69739-34-0

RGT G 121-44-8 Et3N

PRO F 756836-62-1

NTE enantiomer prepared similarly

AN 141:259007 CASREACT

L13 ANSWER 4 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 141:191003 CASREACT

TITLE: Reactions of 2H-3,1-benzoxazine -2,4(1H)-dione

AUTHOR(S): Milea, M.; Csunderlik, C.; Fota, Daniela

CORPORATE SOURCE: Department of Organic Chemistry, The University "POLITEHNICA" Timisoara, Timisoara, RO-1900, Rom.

SOURCE: Buletinul Stiintific al Universitatii "Politehnica" din Timisoara Romania, Seria Chimie si Mediului (2000), 45(1), 163-167

CODEN: BSIMFG; ISSN: 1224-6018

PUBLISHER: Universitatii "Politehnica" din Timisoara

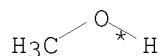
DOCUMENT TYPE: Journal

LANGUAGE: English

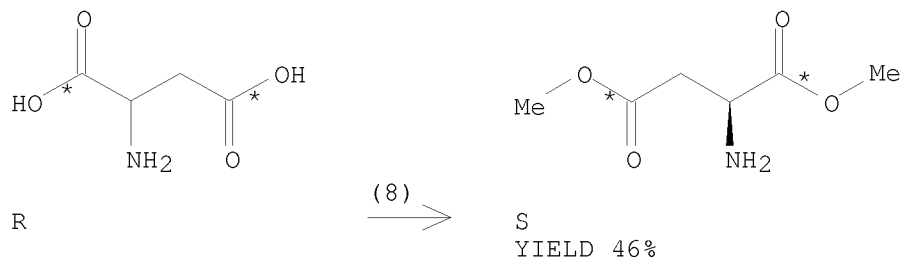
AB Reactions of isatoic anhydride (2H-3,1-benzoxazine -2,4(1H)-dione) with alcs. and phenols, both in the presence or absence of basic catalysts, have been studied, conditions have been established and the products characterized by physico-chemical methods. Also the reactions of isatoic anhydride with Me esters of α -amino acids were studied among the reactions of isatoic anhydride with nitrogen nucleophiles.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

RX(8) OF 18 2 N + R ==> S...



2 N



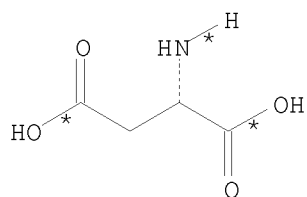
RX(8) RCT N 67-56-1, R 617-45-8
 RGT Q 7719-09-7 SOCl₂
 PRO S 6384-18-5
 CON 13 hours, 60 deg C
AN 141:191003 CASREACT

L13 ANSWER 5 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

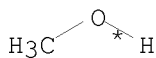
ACCESSION NUMBER: 141:54226 CASREACT
TITLE: Synthesis of 2-(5-methyl-2-phenyl-4-oxazolyl)ethanol
AUTHOR(S): Wang, Ya-Lou; Liu, Xing; Li, Jiang-Chuan
CORPORATE SOURCE: Department of Medicinal Chemistry, China
 Pharmaceutical University, Nanjing, 210009, Peop. Rep.
 China
SOURCE: Yingyong Huaxue (2004), 21(1), 104-106
 CODEN: YIHUED; ISSN: 1000-0518
PUBLISHER: Kexue Chubanshe
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB 2-(5-Methyl-2-phenyl-4-oxazolyl)ethanol (I) was synthesized from L-aspartic acid via 5-step reactions; esterification, N-benzoylation, Dakin-West reaction, cyclization and reduction using LiAlH₄ in about 31.2% overall yield. Reacting L-aspartic acid with methanol in 0 °C gave 72.6% L-aspartic acid β-Me ester hydrochloride, which was benzoylated to give 82.0% N-benzoyl-L-aspartic acid β-Me ester (II). Dakin-West reaction of II gave 74.4% Me 3-benzamido-4-oxovalerate, which was cyclized in toluene by POCl₃ to give 81.8% Me 2-(5-methyl-2-phenyl-4-oxazolyl)acetate, the latter can easily convert to I by treatment with ether solution of LiAlH₄ in yield of 86%. All the compds. were characterized by ¹H NMR, IR and elemental anal.

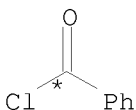
RX(14) OF 15 COMPOSED OF RX(5), RX(1), RX(2)
RX(14) Q + R + B + H ==> I



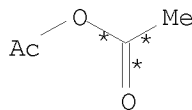
Q



R

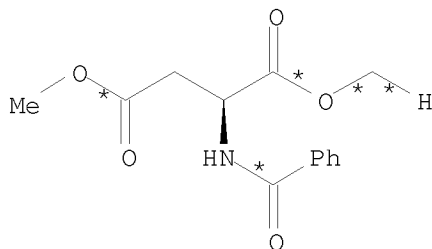


B



H

3
STEPS
→



I
YIELD 74%

RX(5) RCT Q 56-84-8, R 67-56-1
RGT S 7719-09-7 SOCl2
PRO A 16856-13-6
CON 2.5 hours, 40 deg C

RX(1) RCT A 16856-13-6, B 98-88-4

STAGE(1)

RGT D 121-44-8 Et3N
SOL 75-09-2 CH2Cl2
CON 1.5 hours, 0 deg C

STAGE(2)

RGT E 7647-01-0 HCl
SOL 7732-18-5 Water

PRO C 39741-26-9

RX(2) RCT C 39741-26-9, H 108-24-7

STAGE(1)

SOL 110-86-1 Pyridine
CON 3 hours, 90 deg C

STAGE(2)

RGT E 7647-01-0 HCl
SOL 7732-18-5 Water
CON pH 2

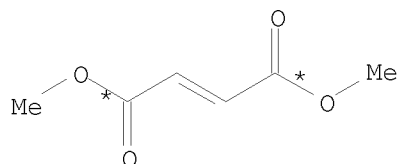
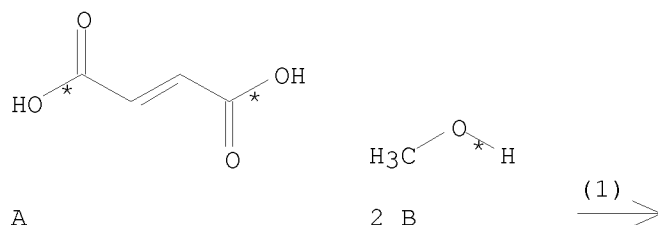
PRO I 86555-45-5

AN 141:54226 CASREACT

TITLE: Catalytic synthesis of dimethyl fumarate using solid-supported superacid catalyst
 AUTHOR(S): Zhao, Lifang; He, Zhusheng; Ma, Yuying
 CORPORATE SOURCE: Dept. Chem. + Chem. Eng., Baoji Coll. Arts + Sci., Baoji, 721007, Peop. Rep. China
 SOURCE: Baoji Wenli Xueyuan Xuebao, Ziran Kexueban (2002), 22(2), 138-140
 CODEN: BWZKFL
 PUBLISHER: Baoji Wenli Xueyuan Xuebao Bianjibu
 DOCUMENT TYPE: Journal
 LANGUAGE: Chinese

AB The preparation of supported catalyst, TiO₂/La³⁺/SO₄²⁻ supported on mol. sieves, and its catalytic activity to esterification of fumarate were studied. The catalyst had fine catalytic activity. The optimum conditions of the esterification were decided by orthogonal expts. as follows: activation temperature of the catalyst was 500°, the amount of catalyst was 15% (based on the mass of fumaric acid), the mole ratio of alc. to acid was 6:1 and the reaction time was 5 h. Under the optimum reaction conditions, the yield of di-Me fumarate was up to 92.3%.

RX(1) OF 1 A + 2 B ==> C



C
 YIELD 93%

RX(1) RCT A 110-17-8, B 67-56-1
 PRO C 624-49-7
 CAT 7664-93-9 H₂SO₄, 10099-60-2 Sulfuric acid, lanthanum(3+) salt (3:2)
 CON 3 hours, reflux
 NTE TiO₂/La/SO₄ supported mol. sieves used as catalyst, optimization study
 AN 139:6591 CASREACT

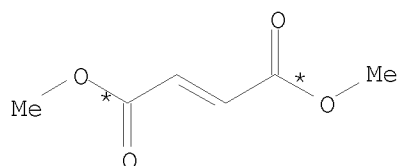
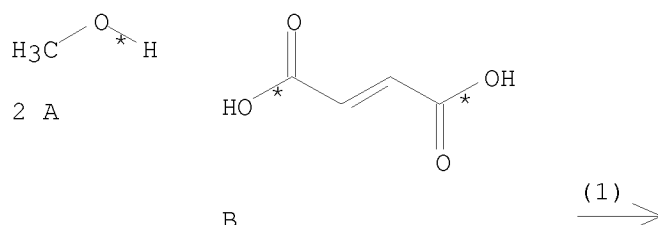
L13 ANSWER 7 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 138:337689 CASREACT
 TITLE: Synthesis of dimethyl fumarate by heterogeneous supported heteropoly acid
 AUTHOR(S): Xu, Wenyuan; Peng, Daofeng; Xiong, Guoxuan; Zhu, Xiaping

CORPORATE SOURCE: Department of Applied Chemistry, East China Institute of Technology, Fuzhou, 344000, Peop. Rep. China
 SOURCE: Huaxue Shiji (2002), 24(6), 367-368
 CODEN: HUSHDR; ISSN: 0258-3283
 PUBLISHER: Huagongbu Huaxue Shiji Xinsizhan
 DOCUMENT TYPE: Journal
 LANGUAGE: Chinese

AB Synthesis of di-Me fumarate by esterification reaction of fumaric acid with methanol catalyzed by heterogeneous supported heteropoly acid PW12/C was studied in this paper. A careful study of the effects on the esterification reaction was done. Under these conditions, the yield of ester was about 91.6%.

RX(1) OF 1 2 A + B ==> C



C
 YIELD 91%

RX(1) RCT A 67-56-1, B 110-17-8
 PRO C 624-49-7
 CAT 1343-93-7 Tungstate(3-),
 tetracosa-μ-oxododecaoxo[μ12-[phosphato(3-)-
 κO:κO:κO:κO':κO':κO':κ
 O':κO':κO':κO':κO':κO']d
 odeva-, hydrogen (1:3), 7440-44-0 Carbon
 CON 3 hours, reflux
 AN 138:337689 CASREACT

L13 ANSWER 8 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 138:271016 CASREACT

TITLE: A simple, convenient and expeditious route to methyl esters of carboxylic acids by thionyl chloride-methanol

AUTHOR(S): Chatterjee, Tapasi; Chattopadhyay, Subhagata

CORPORATE SOURCE: Department of Chemistry, Jadavpur University, Kolkata, 700 032, India

SOURCE: Oriental Journal of Chemistry (2002), 18(2), 187-190
 CODEN: OJCHEG; ISSN: 0970-020X

PUBLISHER: Oriental Scientific Publishing Co.

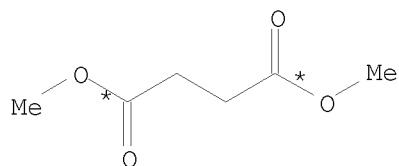
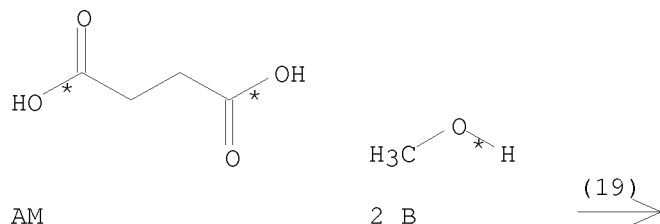
DOCUMENT TYPE: Journal

LANGUAGE: English

AB A simple, convenient and expeditious preparation of 40-90% Me esters of carboxylic acids by thionyl chloride and MeOH was described. Among the 29 esters prepared were 90% 2-IC₆H₄CO₂Me, 87% 4-MeOC₆H₄CO₂Me and 86% Bz(CH₂)₂CO₂Me.

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

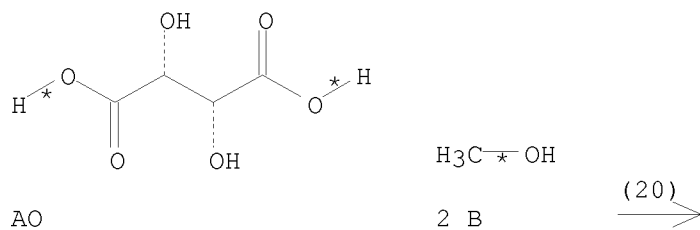
RX(19) OF 29 AM + 2 B ==> AN

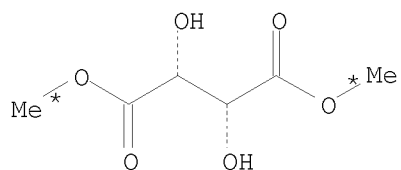


AN
YIELD 53%

RX(19) RCT AM 110-15-6, B 67-56-1
RGT D 7719-09-7 SOC12
PRO AN 106-65-0
CON 2 hours, reflux

RX(20) OF 29 AO + 2 B ==> AP

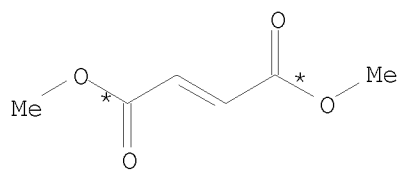
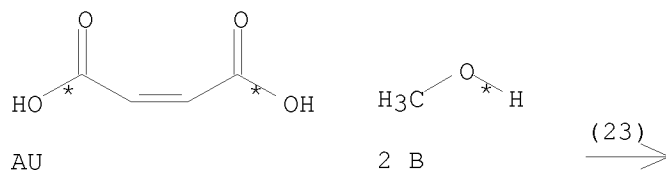




AP
YIELD 61%

RX(20) RCT AO 87-69-4, B 67-56-1
 RGT D 7719-09-7 SOCl₂
 PRO AP 608-68-4
 CON 2 hours, reflux

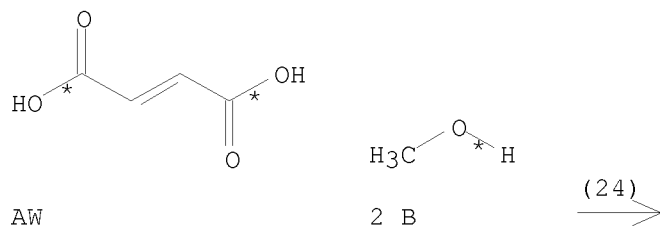
RX(23) OF 29 AU + 2 B ==> AV

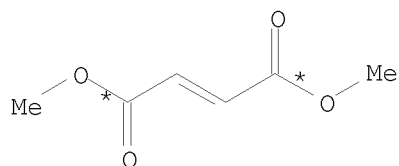


AV
YIELD 64%

RX(23) RCT AU 110-16-7, B 67-56-1
 RGT D 7719-09-7 SOCl₂
 PRO AV 624-49-7
 CON 2 hours, reflux

RX(24) OF 29 AW + 2 B ==> AV





AV
YIELD 68%

RX(24) RCT AW 110-17-8, B 67-56-1
RGT D 7719-09-7 SOC12
PRO AV 624-49-7
CON 2 hours, reflux
AN 138:271016 CASREACT

L13 ANSWER 9 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 137:352688 CASREACT

TITLE: Catalytic reaction-distillation synthesis of dimethyl fumarate by fixed-carried heteropoly acid

AUTHOR(S): Ding, Bin; Guo, Xiangming

CORPORATE SOURCE: Jilin Institute of Chemical Technology, Jilin, 1320022, Peop. Rep. China

SOURCE: Dongbei Shida Xuebao, Ziran Kexueban (2001), 33(4), 61-65

CODEN: DSZKEE; ISSN: 1000-1832

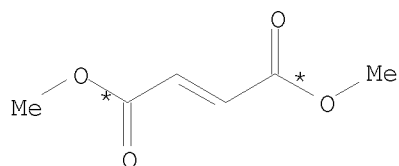
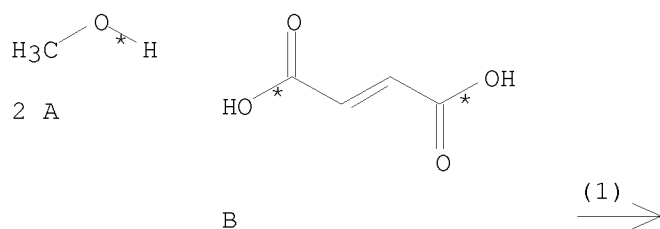
PUBLISHER: Dongbei Shifan Daxue Xueshu Qikanshe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB A new synthesis technol. of di-Me fumarate was presented. Fumarate, methanol, and self-made fixed-carried heteropoly acid as catalyst were used. The reaction-distillation conditions were ratio of alc. and acid about 7:1; esterification temperature about 67-78°; and reaction time ≤6 h. The yield of product was up to 92%.

RX(1) OF 1 2 A + B ==> C



C
YIELD 92%

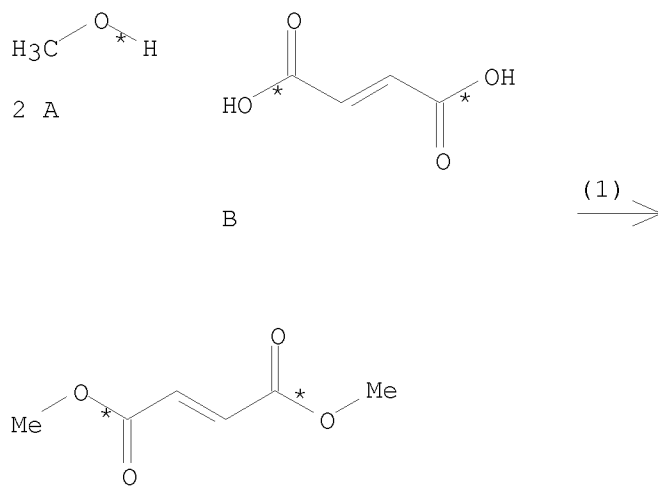
RX(1) RCT A 67-56-1, B 110-17-8
 PRO C 624-49-7
 CAT 1343-93-7D Tungstate(3-),
 tetracosa-μ-oxododecaoxo[μ12-[phosphato(3-)-
 κO:κO:κO:κO':κO':κO':κ
 O':κO':κO':κO':κO':κO']d
 odeva-, hydrogen (1:3)
 AN 137:352688 CASREACT

L13 ANSWER 10 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 136:294520 CASREACT
 TITLE: Synthesis of dimethyl fumarate catalyzed by
 SO42-/TiO2/La3+ rare earth solid superacid
 AUTHOR(S): Zhou, Jianwei
 CORPORATE SOURCE: Department of Chemical Engineering, Pingyuan
 University, Xinxiang, 453003, Peop. Rep. China
 SOURCE: Henan Huagong (2001), (5), 12-14
 CODEN: HEHUF3; ISSN: 1003-3467
 PUBLISHER: Henansheng Shiyu Huaxue Gongye Keji Qingbao
 Zhongxinzhuan
 DOCUMENT TYPE: Journal
 LANGUAGE: Chinese

AB Di-Me fumarate was synthesized from fumaric acid and methanol with
 SO42-/TiO2/La3+ rare earth solid superacid as catalyst in dichloromethane
 solvent. Optimum synthetic conditions were determined: molar ratio of fumaric
 acid to methanol 6:1, dosage of catalyst 1.0 g/0.1 mol fumaric acid, time
 4 h and solvent 25 mL. Yield of product reached above 94%.

RX(1) OF 1 2 A + B ==> C



C
 YIELD 94%

RX(1) RCT A 67-56-1, B 110-17-8
 PRO C 624-49-7
 CAT 14808-79-8 Sulfate, 13463-67-7 TiO2, 215650-46-7 Sulfuric acid,
 lanthanum(3+) salt (3:1)
 SOL 75-09-2 CH2Cl2
 AN 136:294520 CASREACT

L13 ANSWER 11 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 136:279092 CASREACT

TITLE: Synthesis of dimethyl fumarate from maleic acid

AUTHOR(S): Cao, Kelin

CORPORATE SOURCE: Shanxi Taiming Chemical Engineering Co., Ltd., Taigu, 030800, Peop. Rep. China

SOURCE: Huagong Jinzhan (2001), 20(4), 33-34, 39

CODEN: HUJIEK; ISSN: 1000-6613

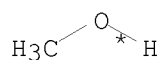
PUBLISHER: Huaxue Gongye Chubanshe

DOCUMENT TYPE: Journal

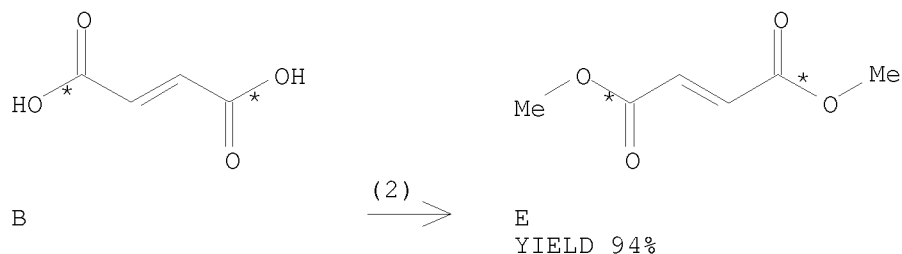
LANGUAGE: Chinese

AB Title compound was prepared from maleic acid, isomerized fumaric acid in the presence of ammonium persulfate as catalyst, further esterification with methanol in the presence of phosphotungstic acid as catalyst, giving product with yield over 94%. The effects of catalysts and catalyst amount on the reactions were studied.

RX(2) OF 3 ...2 D + B ==> E



2 D



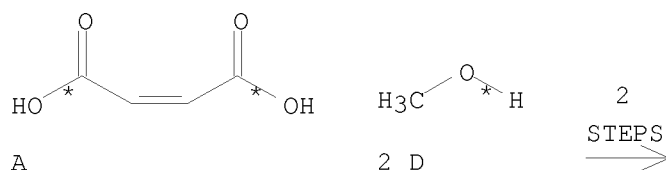
RX(2) RCT D 67-56-1, B 110-17-8

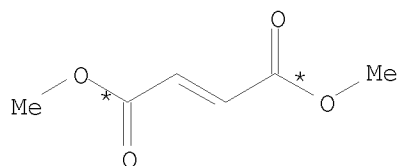
PRO E 624-49-7

CAT 12067-99-1 Tungsten hydroxide oxide phosphate

RX(3) OF 3 COMPOSED OF RX(1), RX(2)

RX(3) A + 2 D ==> E





E
YIELD 94%

RX(1) RCT A 110-16-7
PRO B 110-17-8
CAT 7727-54-0 (NH4)2S2O8

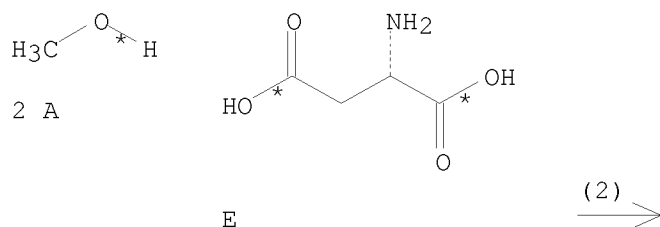
RX(2) RCT D 67-56-1, B 110-17-8
PRO E 624-49-7
CAT 12067-99-1 Tungsten hydroxide oxide phosphate

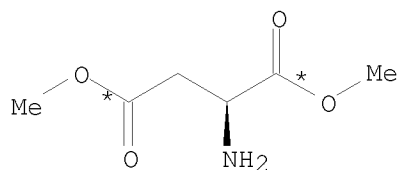
AN 136:279092 CASREACT

L13 ANSWER 12 OF 29 CASREACT COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 136:263409 CASREACT
TITLE: Synthesis of new chiral lipophilic macrocyclic oxo polyamines
AUTHOR(S): Yan, Qianshun; You, Jinsong; Xiang, Qingxiang; Yu, Xiaoqi; Xie, Rugang
CORPORATE SOURCE: Department of Chemistry, Sichuan University, Chengdu, 610064, Peop. Rep. China
SOURCE: Huaxue Yanjiu Yu Yingyong (2001), 13(2), 189-191
CODEN: HYIIFM; ISSN: 1004-1656
PUBLISHER: Huaxue Yanjiu Yu Yingyong Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB New chiral lipophilic macrocyclic oxo polyamines were synthesized from L-glutamic acid or L-aspartic acid by esterifying with methanol, acylating with dodecanoyl chloride in chloroform in the presence of K2CO3 to obtain di-Me N-dodecanoyl-L-glutamate or L-aspartate, and transacylating with diethylenetriamine or triethylenetetraamine in methanol under refluxing. Their structures were characterized by MS, 1H NMR, and elemental anal.

RX(2) OF 15 2 A + E ==> F...

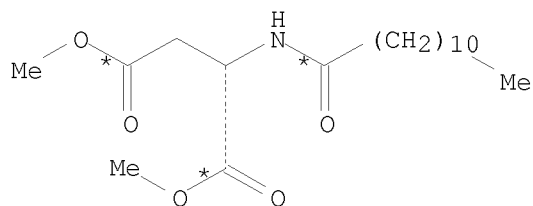
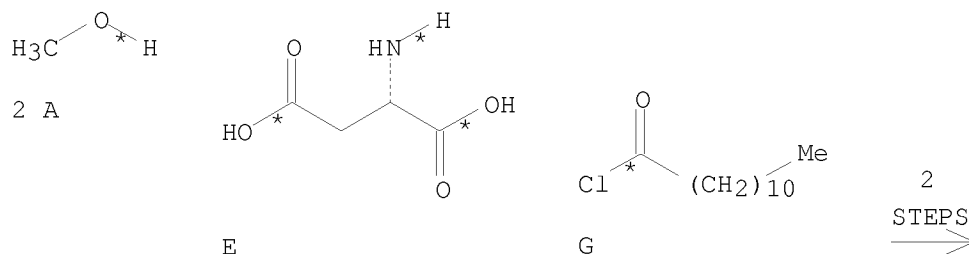




F
YIELD 68%

RX(2) RCT A 67-56-1, E 56-84-8
RGT D 7719-09-7 SOCl2
PRO F 6384-18-5

RX(9) OF 15 COMPOSED OF RX(2), RX(4)
RX(9) 2 A + E + G ==> K



K
YIELD 66%

RX(2) RCT A 67-56-1, E 56-84-8
RGT D 7719-09-7 SOCl2
PRO F 6384-18-5

RX(4) RCT G 112-16-3, F 6384-18-5
RGT I 584-08-7 K2CO3
PRO K 258351-51-8
SOL 67-66-3 CHCl3
AN 136:263409 CASREACT

L13 ANSWER 13 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 135:256190 CASREACT

TITLE: Lipase-catalyzed synthesis of RGD diamide in aqueous water-miscible organic solvents

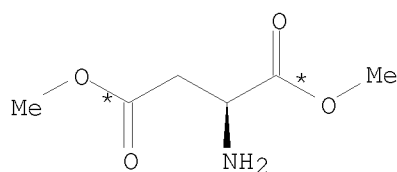
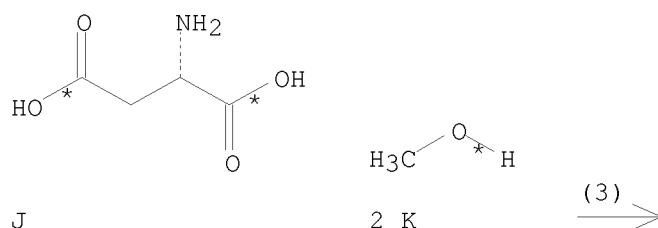
AUTHOR(S): Zhang, L.-Q.; Zhang, Y.-D.; Xu, L.; Li, X.-L.; Yang, X.-c.; Xu, G.-L.; Wu, X.-X.; Gao, H.-Y.; Du, W.-B.;

Zhang, X.-T.; Zhang, X.-Z.
 CORPORATE SOURCE: Key Laboratory of Molecular Enzymology and
 Engineering, Jilin University, Changchun, 130023,
 Peop. Rep. China
 SOURCE: Enzyme and Microbial Technology (2001), 29(2-3),
 129-135
 CODEN: EMTED2; ISSN: 0141-0229
 PUBLISHER: Elsevier Science Ireland Ltd.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB 1RGD tripeptide as the cellular adhesion factor was synthesized by a
 combination of chemical and enzymic methods in this study. First of all,
 Gly-Asp diamide was synthesized by a novel chemical method in three steps
 including preparation of L-aspartic acid di-Me ester, chloroacetylation of
 L-aspartic acid di-Me ester and ammonolysis of chloroacetyl L-aspartic
 acid di-Me ester. Secondly, Porcine Pancreas Lipase (PPL) was used to
 catalyze the synthesis of Benzyl-Arg-Gly-Asp diamide in water-organic
 cosolvents systems. The reaction condition was optimized by examining the
 main factors affecting the yield of the tripeptide. The optimal reaction
 condition was set up as pH7.7, 15°C in 50% DMF for 8 h with the
 maximum yield of 76.4%. It was also found that 50% DMSO was another
 alternative with the tripeptide yield of 71.7%.

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

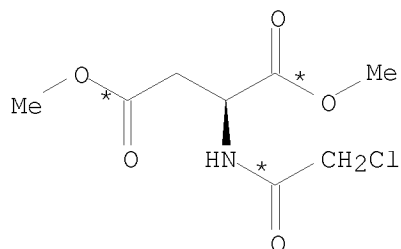
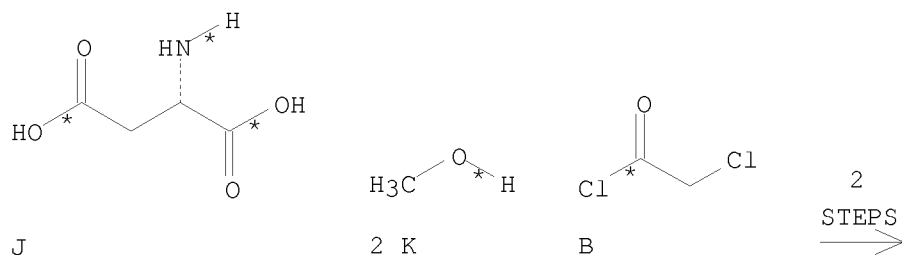
RX(3) OF 6 J + 2 K ==> A...



A

RX(3) RCT J 56-84-8, K 67-56-1
 RGT L 7647-01-0 HCl
 PRO A 6384-18-5
 SOL 67-56-1 MeOH

RX(5) OF 6 COMPOSED OF RX(3), RX(1)
 RX(5) J + 2 K + B ==> C



C

RX(3) RCT J 56-84-8, K 67-56-1
 RGT L 7647-01-0 HCl
 PRO A 6384-18-5
 SOL 67-56-1 MeOH

RX(1) RCT A 6384-18-5, B 79-04-9
 RGT D 1310-73-2 NaOH
 PRO C 76385-50-7
 SOL 67-66-3 CHCl3, 7732-18-5 Water

AN 135:256190 CASREACT

L13 ANSWER 14 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 134:310893 CASREACT

TITLE: Synthesis of dimethyl fumarate catalyzed by composite solid superacid SO42-/TiO2-Al2O3

AUTHOR(S): Cheng, Yonghao

CORPORATE SOURCE: Department of Chemistry, Hebei Normal University, Shijiazhuang, 050016, Peop. Rep. China

SOURCE: Riyong Huaxue Gongye (2000), 30(5), 12-13
 CODEN: RHGOE8; ISSN: 1001-1803

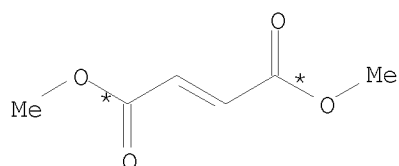
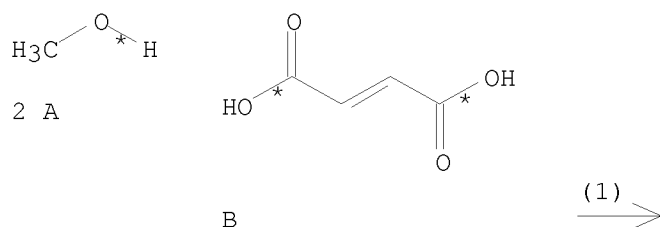
PUBLISHER: Qinggongyebu Kexue Jishu Qingbao Yanjiuso

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Di-Me fumarate was synthesized from fumaric acid and methanol with composite solid superacid SO42-/TiO2- Al2O3 as catalyst. Optimum synthetic conditions were determined: methanol:fumaric acid 6:1, time 4 h, and dosage of catalyst 3 g. Yield of product reached 91.4%.

RX(1) OF 1 2 A + B ==> C



YIELD 91%

RX(1) RCT A 67-56-1, B 110-17-8
 PRO C 624-49-7
 CAT 14808-79-8 Sulfate, 13463-67-7 TiO₂, 1344-28-1 Al₂O₃
 AN 134:310893 CASREACT

L13 ANSWER 15 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 133:296252 CASREACT

TITLE: A simple method for the preparation of monomethyl
 esters of dicarboxylic acids by selective
 esterification of the nonconjugated carboxyl group in
 the presence of an aromatic or conjugated carboxyl
 group

AUTHOR(S): Ram, Ram N.; Meher, Nabin Kumar

CORPORATE SOURCE: Department of Chemistry, Indian Institute of
 Technology, New Delhi, 110016, India

SOURCE: Journal of Chemical Research, Synopses (2000), (6),
 282-283

CODEN: JRPSDC; ISSN: 0308-2342

PUBLISHER: Science Reviews Ltd.

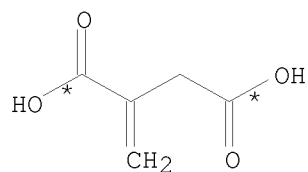
DOCUMENT TYPE: Journal

LANGUAGE: English

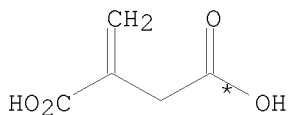
AB Various dicarboxylic acids were converted selectively into monomethyl
 esters in which the nonconjugated carboxyl group is selectively esterified
 in the present of an aromatic or conjugated carboxyl group at room temperature
 (.apprx.25-27°) in MeOH using a catalytic amount of SOCl₂.

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

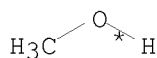
RX(7) OF 9 2 W + 3 B ==> X + Y



W

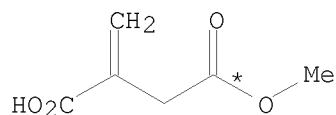


W

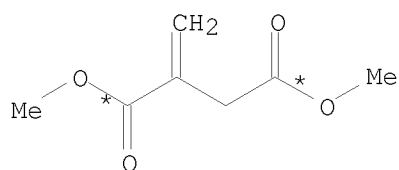


3 B

(7) \longrightarrow



X
YIELD 90%



Y
YIELD 4%

RX(7) RCT W 97-65-4, B 67-56-1

STAGE(1)

CAT 7719-09-7 SOC12

SOL 67-56-1 MeOH

STAGE(2)

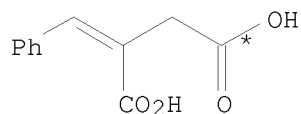
RGT E 7647-01-0 HCl

SOL 7732-18-5 Water

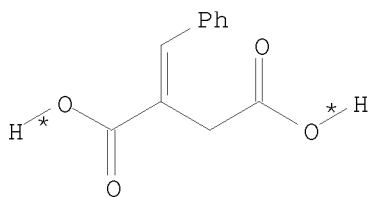
PRO X 7338-27-4, Y 617-52-7

NTE chemoselective

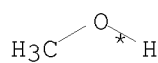
RX(9) OF 9 2 AC + 3 B ==> AD + AE



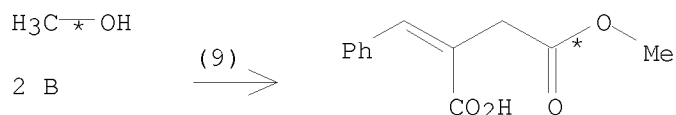
AC



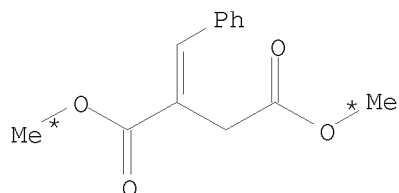
AC



B



AD
YIELD 85%



AE
YIELD 10%

RX(9) RCT AC 5653-88-3, B 67-56-1

STAGE(1)

CAT 7719-09-7 SOC12

SOL 67-56-1 MeOH

STAGE(2)

RGT E 7647-01-0 HCl

SOL 7732-18-5 Water

PRO AD 38418-34-7, AE 80459-39-8

NTE chemoselective

AN 133:296252 CASREACT

L13 ANSWER 16 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 130:66049 CASREACT

TITLE: A selective method for the preparation of aliphatic methyl esters in the presence of aromatic carboxylic acids

AUTHOR(S): Rodriguez, A.; Nomen, M.; Spur, B. W.

CORPORATE SOURCE: Department of Cell Biology, Univ. of Medicine and Dentistry of New Jersey, Stratford, NJ, 08084, USA

SOURCE: Tetrahedron Letters (1998), 39(47), 8563-8566

CODEN: TELEAY; ISSN: 0040-4039

PUBLISHER: Elsevier Science Ltd.

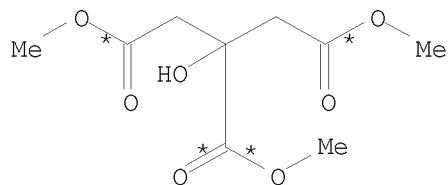
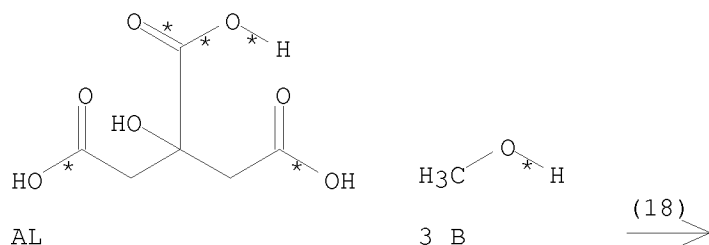
DOCUMENT TYPE: Journal

LANGUAGE: English

AB 2,2-Dimethoxypropane, methanol and a catalytic amount of HCl selectively esterify aliphatic carboxylic acids in the presence of aromatic carboxylic acids at room temperature and in high yields.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

RX(18) OF 22 AL + 3 B ==> AM

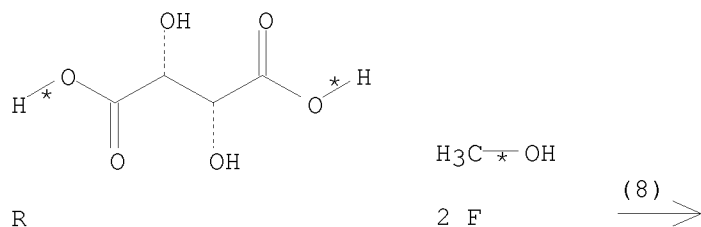


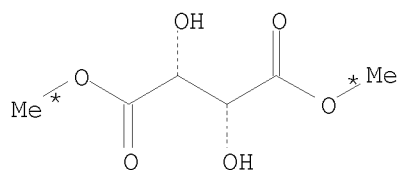
AM
YIELD 100%

RX(18) RCT AL 77-92-9, B 67-56-1
 RGT D 77-76-9 Me2C(OMe)2
 PRO AM 1587-20-8
 CAT 75-77-4 Me3SiCl
 SOL 67-56-1 MeOH
 NTE chemoselective, arom. acids are not esterified
 AN 130:66049 CASREACT

L13 ANSWER 17 OF 29 CASREACT COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 121:280006 CASREACT
 TITLE: A convenient and mild procedure for the preparation of
 hydroxy esters from lactones and hydroxy acids
 AUTHOR(S): Anand, R. C.; Selvapalam, N.
 CORPORATE SOURCE: Dep. Chem., Indian Inst. Technol., New Delhi, 110016,
 India
 SOURCE: Synthetic Communications (1994), 24(19), 2743-7
 CODEN: SYNCAV; ISSN: 0039-7911
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB An alc. solution of lactones and hydroxy acids stored on Amberlyst-15 results
 in the formation of corresponding hydroxy esters in high yields.

RX(8) OF 8 R + 2 F ==> S



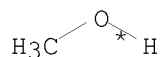


S
YIELD 85%

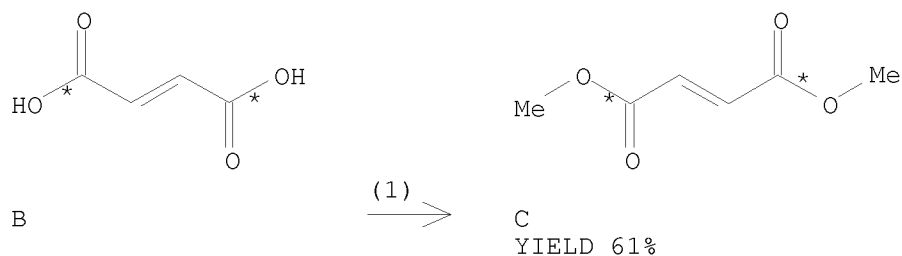
RX(8) RCT R 87-69-4, F 67-56-1
RGT D 9037-24-5 Amberlyst 15
PRO S 608-68-4
SOL 67-56-1 MeOH
AN 121:280006 CASREACT

L13 ANSWER 18 OF 29 CASREACT COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 120:269626 CASREACT
TITLE: Catalytic synthesis of dimethyl fumarate with ferric chloride
AUTHOR(S): Yu, Shanxin; Lei, Huanwen
CORPORATE SOURCE: Dep. Chem., Hunan Norm. Univ., Changsha, 410081, Peop. Rep. China
SOURCE: Huaxue Shiji (1993), 15(6), 374, 376
CODEN: HUSHDR; ISSN: 0258-3283
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB Ferric chloride (FeCl₃·6H₂O) can be used as a catalyst for the esterification reaction of fumaric acid instead of sulfuric acid. The conditions in synthesis of di-Me fumarate catalyzed with FeCl₃·6H₂O are described. The advantages of this method are: simple procedure, mild reaction conditions, non-corrosive, less pollution and purer product.

RX(1) OF 1 2 A + B ==> C



2 A



RX(1) RCT A 67-56-1, B 110-17-8
PRO C 624-49-7
CAT 7705-08-0 FeCl₃
AN 120:269626 CASREACT

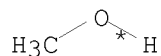
ACCESSION NUMBER: 119:226419 CASREACT
 TITLE: Method for preparing amino acid esters involving
 (continuous) addition and distillation of alcohols
 INVENTOR(S): Takemoto, Tadashi; Takeda, Hideo
 PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Japan
 SOURCE: Eur. Pat. Appl., 4 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 544205	A2	19930602	EP 1992-119898	19921123
EP 544205	A3	19930728		
EP 544205	B1	19950906		
R: BE, CH, DE, FR, GB, IT, LI, NL				
JP 05148199	A	19930615	JP 1991-314585	19911128
CA 2084012	A1	19930529	CA 1992-2084012	19921127
US 5424476	A	19950613	US 1994-194635	19940210
PRIORITY APPLN. INFO.:			JP 1991-314585	19911128
			US 1992-982123	19921125

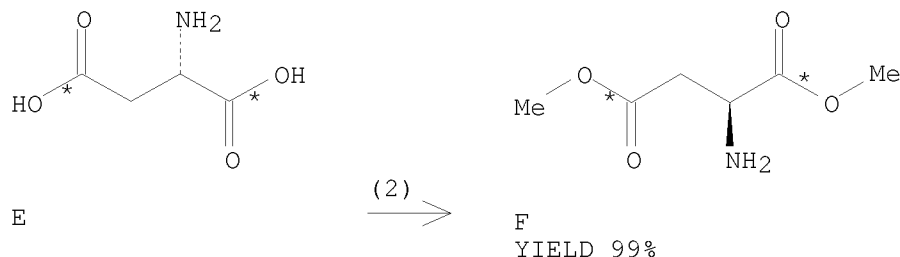
AB Amino acid esters were prepared by heating a mixture of an amino acid, an alc., and H₂SO₄ with simultaneous addition of liquid or gaseous alc. to the reaction mixture and distillation of the same. Thus, H-Phe-OH in MeOH containing cat.

H₂SO₄ was kept at 85° for 4 h with simultaneous addition and distillation of MeOH to give 98.6% H-Phe-OMe. Simple reflux of the above reactants gave a yield of only 83-2% product.

RX(2) OF 4 2 A + E ==> F



2 A

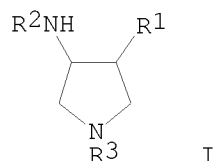


RX(2) RCT A 67-56-1, E 56-84-8
 PRO F 6384-18-5
 CAT 7664-93-9 H₂SO₄
 NTE continuous addn. and distn. of methanol
 AN 119:226419 CASREACT

ACCESSION NUMBER: 119:180649 CASREACT
 TITLE: Preparation of pyrrolidine derivatives from amino acids.
 INVENTOR(S): Hirabayashi, Satoshi; Ike, Kazuo; Zanka, Atuhiko; Kawakami, Takeshi; Ichihara, Masaharu
 PATENT ASSIGNEE(S): Fujisawa Pharmaceutical Co., Ltd., Japan
 SOURCE: PCT Int. Appl., 20 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9220652	A1	19921126	WO 1992-JP648	19920520
W: JP, US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE				
JP 04346971	A	19921202	JP 1991-219431	19910521
PRIORITY APPLN. INFO.:			JP 1991-219431	19910521
OTHER SOURCE(S):		MARPAT 119:180649		

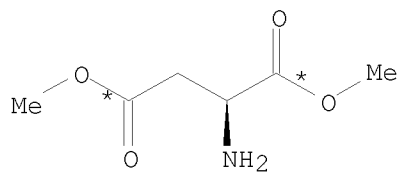
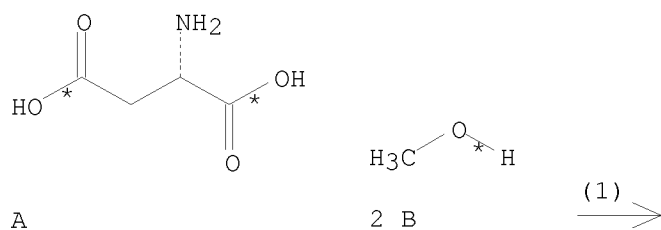
GI



AB Reaction of R₂-NH-CH(CO₂-R₅)-CH₂-CO₂-R₄ (R₂, R₄, R₅ = protecting group) with R₁-X [R₁ = alkyl; X = leaving group] gives R₂-NH-CH(CO₂-R₅)-CH(R₁)-CO₂-R₄, whose reduction gives R₂-NH-CH(CH₂OH)-CH(R₁)-CH₂OH, whose condensation with H₂N-R₃ (R₃ = protecting group) gives pyrrolidine derivs. I, which are optionally deprotected. Di-Me (S)-aspartate hydrochloride (preparation given) in CH₂Cl₂ was mixed with a saturated aqueous solution of NaHCO₃, tert-di-Bu dicarbonate

was added, and the resulting mixture was allowed to stand overnight to give di-Me (S)-N-tert-butoxycarbonylaspartate, which was treated with MeI in THF containing hexamethyldisilazane and BuLi at -40 to -30° for 2 h to give, after adjusting to pH 7-8 with 1N HCl, a 1:1 mixture of threo- and erythro-(2S)-N-(tert-butoxycarbonyl)-3-methylaspartic acid di-Me ester, which was reduced with NaBH₄ in THF-MeOH at 35-50° for 4 h to give a diastereomeric mixture of (2S)-N-(tert-butoxycarbonylamino)-3-methyl-1,4-butanediol, whose dimesylate ester was heated with benzylamine at 30-50° for 3 days to give 74% a diastereomeric mixture of 1-benzyl-3-tert-butoxycarbonylamino-4-methylpyrrolidine. (3S,4S)-1-benzyl-3-tert-butoxycarbonylamino-4-methylpyrrolidine in MeOH-H₂O containing HCO₂NH₄ was hydrogenolyzed over Pd/C to give (3S,4S)-3-tert-butoxycarbonylamino-4-methylpyrrolidine, which in MeOH-EtOAc was treated with HCl in EtOAc at room temperature for 2 h and then at 35° for 2 h to give (3S,4S)-3-amino-4-methylpyrrolidine.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

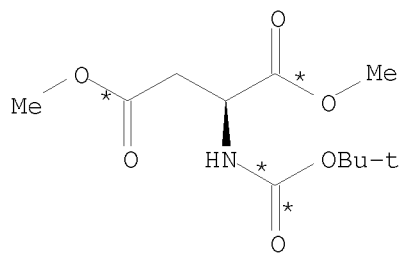
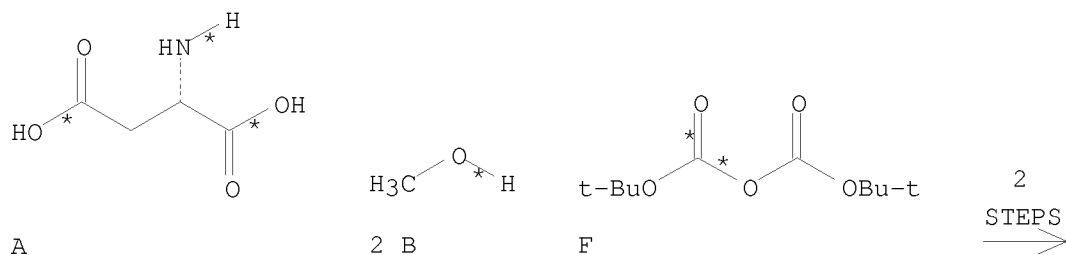


● HCl

C

RX(1) RCT A 56-84-8, B 67-56-1
 RGT D 7719-09-7 SOCl₂
 PRO C 32213-95-9
 SOL 67-56-1 MeOH, 68-12-2 DMF

RX(9) OF 36 COMPOSED OF RX(1), RX(2)
 RX(9) A + 2 B + F ==> G



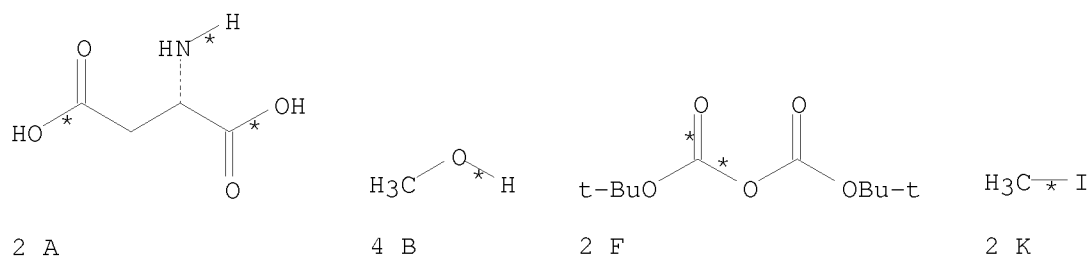
G

RX(1) RCT A 56-84-8, B 67-56-1

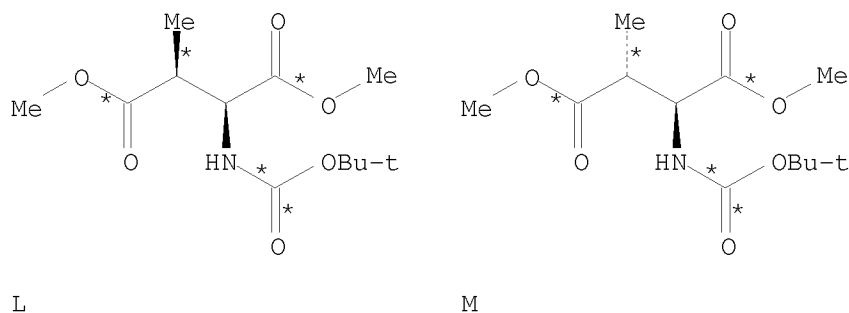
RGT D 7719-09-7 SOCl2
 PRO C 32213-95-9
 SOL 67-56-1 MeOH, 68-12-2 DMF

RX(2) RCT F 24424-99-5, C 32213-95-9
 RGT H 144-55-8 NaHCO3
 PRO G 55747-84-7
 SOL 75-09-2 CH2Cl2, 7732-18-5 Water

RX(16) OF 36 COMPOSED OF RX(1), RX(2), RX(3)
 RX(16) 2 A + 4 B + 2 F + 2 K ==> L + M



3
 STEPS
 →



RX(1) RCT A 56-84-8, B 67-56-1
 RGT D 7719-09-7 SOCl2
 PRO C 32213-95-9
 SOL 67-56-1 MeOH, 68-12-2 DMF

RX(2) RCT F 24424-99-5, C 32213-95-9
 RGT H 144-55-8 NaHCO3
 PRO G 55747-84-7
 SOL 75-09-2 CH2Cl2, 7732-18-5 Water

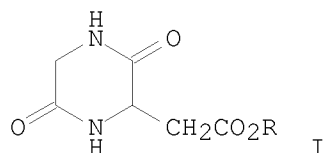
RX(3) RCT K 74-88-4, G 55747-84-7
 RGT N 999-97-3 (Me3Si)2NH, O 109-72-8 BuLi
 PRO L 149598-19-6, M 149598-20-9
 SOL 109-99-9 THF

AN 119:180649 CASREACT

ACCESSION NUMBER: 117:212978 CASREACT
 TITLE: Process for preparing diketopiperazine derivatives
 INVENTOR(S): Toshihisa, Kato; Tadashi, Takemoto
 PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Japan
 SOURCE: Eur. Pat. Appl., 5 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

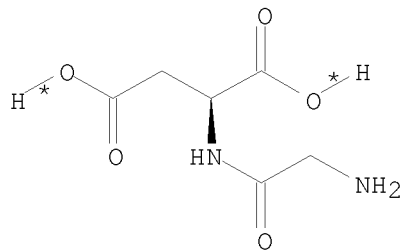
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 493812	A1	19920708	EP 1991-122307	19911227
R: BE, DE, FR, GB, NL				
JP 04234374	A	19920824	JP 1990-418592	19901227
PRIORITY APPLN. INFO.:			JP 1990-418592	19901227
OTHER SOURCE(S):			MARPAT 117:212978	

GI

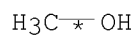


AB Diketopiperazines I (R = C1-6-alkyl) were prepared by treating (chloroacetyl)aspartic acid with NH₃, esterifying the resulting H-Gly-Asp-OH with an alkanol, and cyclizing the resulting diester neutral or weakly basic water or in an alkanol-water solvent mixture. Thus, L-aspartic acid was acylated with ClCH₂COCl in aqueous NaOH to give 62% ClCH₂CO-L-Asp-OH, which was treated NH₃ in water to H-Gly-Asp-OH. The latter was esterified with MeOH containing HCl to give 87% H-Gly-Asp(OMe)-OMe, which was cyclized in water at pH 7.0 at 60° for 3 h to give 72% I (R = Me).

RX(3) OF 10 ...F + 2 H ==> I...



F



2 H




$$\begin{array}{l} \text{RX(6) OF 10 COMPOSED OF RX(2), RX(3)} \\ \text{RX(6) C + 2 H ==> I} \end{array}$$

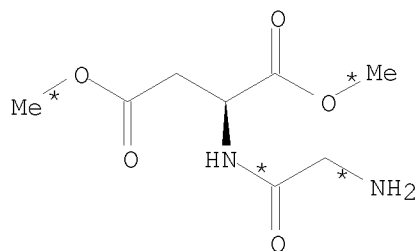
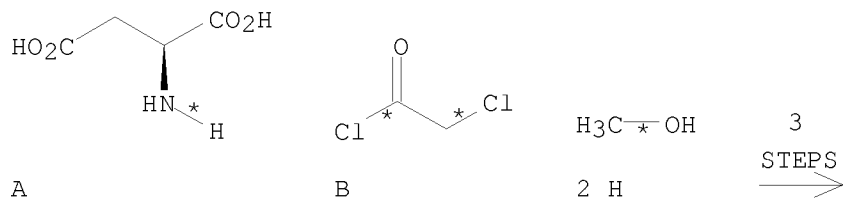

2
STEPS
→



RX(3) RCT F 4685-12-5, H 67-56-1
 RGT J 7647-01-0 HCl
 PRO I 144168-11-6

SOL 67-56-1 MeOH

RX(8) OF 10 COMPOSED OF RX(1), RX(2), RX(3)
RX(8) A + B + 2 H ==> I



I
YIELD 87%

RX(1) RCT A 56-84-8, B 79-04-9
RGT D 1310-73-2 NaOH
PRO C 67036-33-3
SOL 7732-18-5 Water

RX(2) RCT C 67036-33-3
RGT G 7664-41-7 NH3
PRO F 4685-12-5
SOL 7732-18-5 Water

RX(3) RCT F 4685-12-5, H 67-56-1
RGT J 7647-01-0 HCl
PRO I 144168-11-6
SOL 67-56-1 MeOH

AN 117:212978 CASREACT

L13 ANSWER 22 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 116:147458 CASREACT

TITLE: Analysis of keto acids as their methyl esters of
2,4-dinitrophenylhydrazone derivatives by gas
chromatography and gas chromatography-mass
spectrometry

AUTHOR(S): Navarro-Gonzalez, Rafael; Negron-Mendoza, Alicia;
Albarran, Guadalupe

CORPORATE SOURCE: Inst. Cienc. Nucl., UNAM, Mexico City, 04510, Mex.

SOURCE: Journal of Chromatography (1991), 587(2), 247-54
CODEN: JOCRAM; ISSN: 0021-9673

DOCUMENT TYPE: Journal

LANGUAGE: English

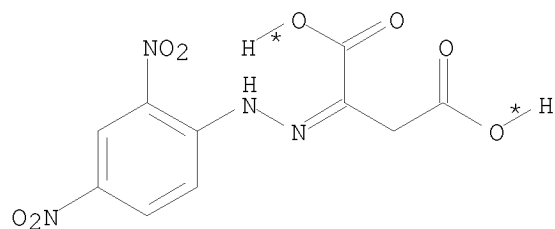
AB The anal. of keto acids via reaction with 2,4-dinitrophenylhydrazine (DNP)

and esterification with methanol-hydrochloric acid by gas chromatog. and gas chromatog.-mass spectrometry is described. The derivs. formed (DNPH) are moderately stable and are easy to analyze. The separation of eighteen biol. important keto acids is described. The utility of the method in electron impact mass spectra of DNPH derivs. is presented.

RX(23) OF 90 ...2 D + AF ==> AG...

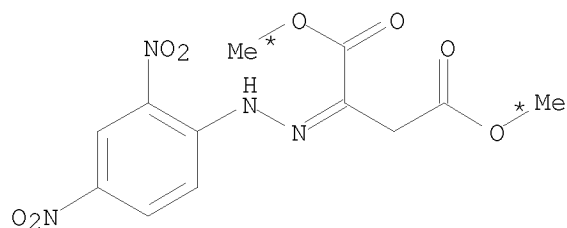
H₃C-^{*}OH

2 D



AF

(23) >



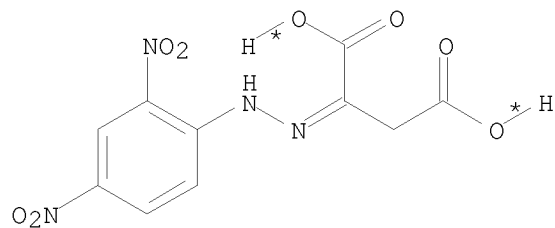
AG

RX(23) RCT D 67-56-1, AF 2891-14-7
RGT F 7647-01-0 HCl
PRO AG 6745-50-2
SOL 7732-18-5 Water

RX(57) OF 90 2 D + AF ==> AG

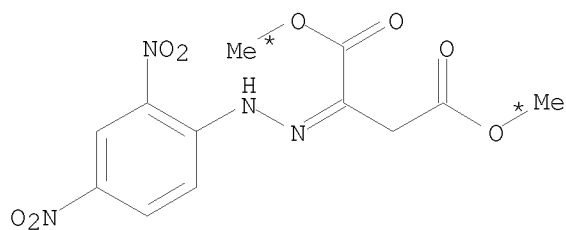
H₃C-^{*}OH

2 D



AF

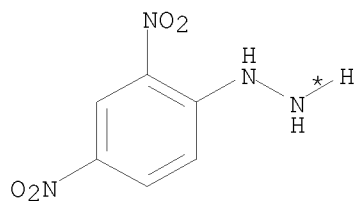
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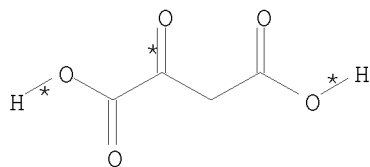
AG

RX(57) RCT D 67-56-1, AF 2891-14-7
 RGT F 7647-01-0 HCl
 PRO AG 6745-50-2
 SOL 7732-18-5 Water

RX(81) OF 90 COMPOSED OF RX(22), RX(23)
 RX(81) A + AE + 2 D ==> AG



A

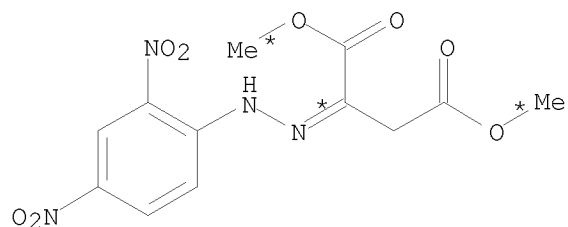


AE

H₃C-OH

2 D

2
 STEPS
 →



AG

RX(22) RCT A 119-26-6, AE 328-42-7
 PRO AF 2891-14-7

RX(23) RCT D 67-56-1, AF 2891-14-7
 RGT F 7647-01-0 HCl
 PRO AG 6745-50-2
 SOL 7732-18-5 Water

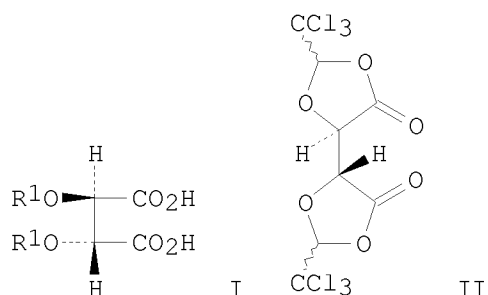
AN 116:147458 CASREACT

L13 ANSWER 23 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 111:232040 CASREACT

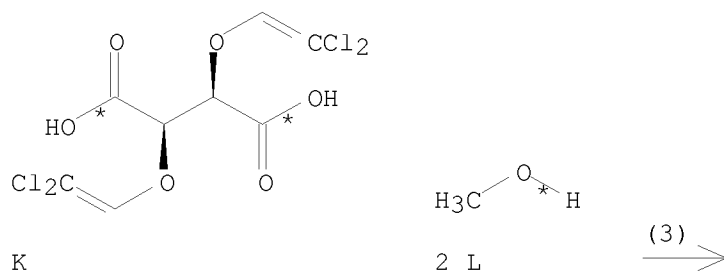
TITLE: (R,R)-,O,O'-(2,2-Dichlorovinyl) tartaric acid: an easily synthesized optically pure vinylether. A new synthesis of (R,R)-O,O'-diethyltartaric acid

AUTHOR(S): Uray, Georg; Lindner, Wolfgang; Reiter, Franz
 CORPORATE SOURCE: Inst. Org. Chem., Karl-Franzens Univ., Graz, A-8010, Austria
 SOURCE: Synthesis (1989), (3), 194-6
 CODEN: SYNTBF; ISSN: 0039-7881
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI



AB (R,R)-Tartaric acid diethers I (R1 = CH:CCl2, Et) were prepared (R,R)-Tartaric acid reacted with CCl3CHO and H2SO4 to give bis-dioxolanone II, and the latter was treated with Zn in HOAc to give I (R1 = CH:CCl2). The hydrogenation at I (R1 = CH:CCl2) over Pd gave I (R1 = Et).

RX(3) OF 18 K + 2 L ==> M

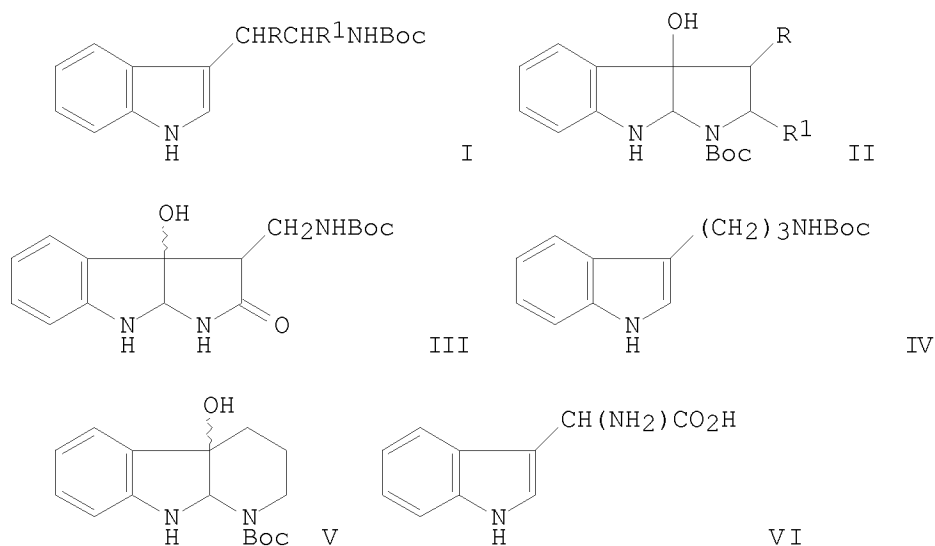


M
 YIELD 68%

RX(3) RCT K 123848-33-9, L 67-56-1
 RGT N 104-15-4 TsOH
 PRO M 123848-34-0

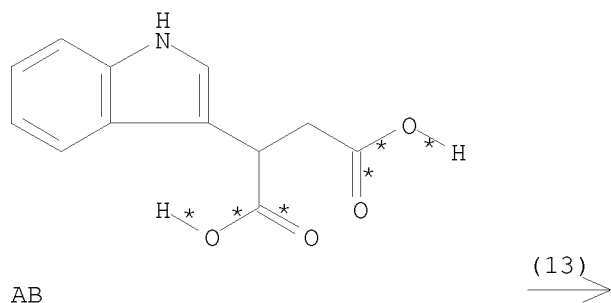
SOL 67-56-1 MeOH
AN 111:232040 CASREACT

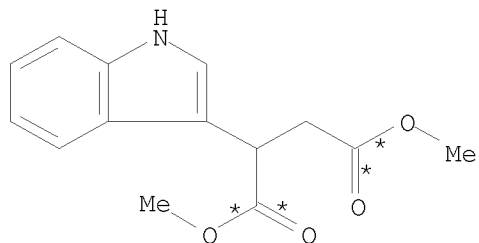
L13 ANSWER 24 OF 29 CASREACT COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 108:6374 CASREACT
TITLE: Hexahydropyrroloindoles. Attempts to synthesize
2-indolyl thio ethers
AUTHOR(S): Droste, Holger; Wieland, Theodor
CORPORATE SOURCE: Max-Planck-Inst., Med. Forsch., Heidelberg, D-6900,
Fed. Rep. Ger.
SOURCE: Liebigs Annalen der Chemie (1987), (11), 901-10
CODEN: LACHDL; ISSN: 0170-2041
DOCUMENT TYPE: Journal
LANGUAGE: German
GI



AB The sensitized photochem. oxidation of tryptamines I (Boc = Me₃CO₂C; R = CN, CO₂H, CO₂Me, R₁ = H; R = H, R₁ = CO₂H, H) gave hexahydropyrroloindoles II. The photochem. oxidation of I (R = CONH₂, R₁ = H) gave ketone III, whereas homotryptamine IV gave hexahydropyridoindole V. No azetidine formation from indolylglycine VI was observed Attempts to synthesize title ethers from tryptamines and sulfenyl chlorides of cysteine derivs. failed.

RX(13) OF 317 ...AB ==> AC...





AC
YIELD 95%

RX(13) RCT AB 10184-94-8
RGT AD 7719-09-7 SOC12, Q 67-56-1 MeOH, AE 110-86-1
Pyridine, AF 1122-58-3 4-DMAP
PRO AC 100711-44-2
SOL 67-56-1 MeOH
AN 108:6374 CASREACT

L13 ANSWER 25 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 105:190448 CASREACT

TITLE: Chemistry of 2-bromo-3-(trichloromethyl)succinic anhydride and dimethyl ester: preparation of various halogenated succinic, maleic, fumaric and malic acid derivatives

AUTHOR(S): Nedelec, J. Y.; Blanchet, D.; Lefort, D.; Biellmann, J. F.

CORPORATE SOURCE: Lab. Electrochim., Catal. Synth. Org., CNRS, Thiais, 94320, Fr.

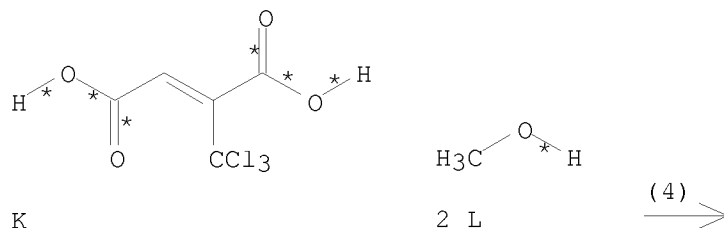
SOURCE: Tetrahedron (1985), 41(20), 4503-8
CODEN: TETRAB; ISSN: 0040-4020

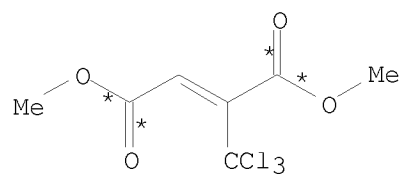
DOCUMENT TYPE: Journal

LANGUAGE: English

AB Various reactions of title adducts of BrCCl₃ with maleic anhydride and di-Me maleate or fumarate were studied. Thus, treatment of erythro-MeO₂CCHBrCH(CCl₃)CO₂Me with AcONa in AcOH at room temperature for 24 h afforded di-Me 2-(trichloromethyl)maleate, along with the corresponding fumarate and MeO₂CCHBrC(CO₂Me):CCl₂.

RX(4) OF 19 ...K + 2 L ==> B

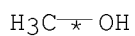
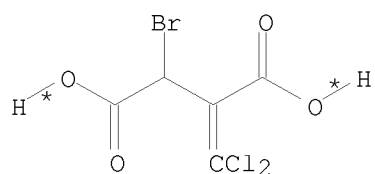




B

RX(4) RCT K 105048-49-5, L 67-56-1
 RGT M 7664-93-9 H2SO4
 PRO B 105048-44-0

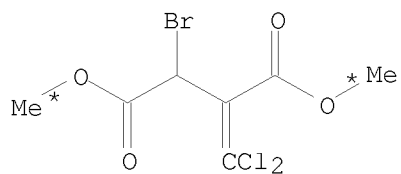
RX(5) OF 19 ...N + 2 L ==> F...



N

2 L

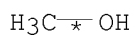
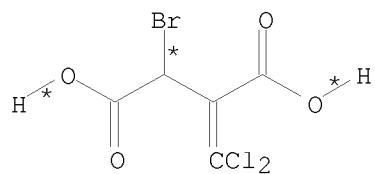
(5)
 →



F

RX(5) RCT N 105048-50-8, L 67-56-1
 RGT M 7664-93-9 H2SO4
 PRO F 105048-45-1

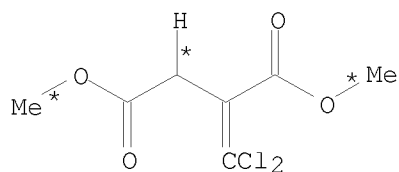
RX(14) OF 19 COMPOSED OF RX(5), RX(7)
 RX(14) N + 2 L ==> R



N

2 L

2
 STEPS
 →



R

RX(5) RCT N 105048-50-8, L 67-56-1
RGT M 7664-93-9 H2SO4
PRO F 105048-45-1

RX(7) RCT F 105048-45-1
RGT S 75-77-4 Me3SiCl, T 7681-82-5 NaI
PRO R 105048-47-3
SOL 75-05-8 MeCN

AN 105:190448 CASREACT

L13 ANSWER 26 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 105:42061 CASREACT

TITLE: σ -Skeletal rearrangement of heptalenes: thermal transformation of heptalene-1,2-dicarboxylates into heptalene-1,3-dicarboxylates

AUTHOR(S): Bernhard, Werner; Bruegger, Paul; Daly, John J.; Englert, Gerhard; Schoenholzer, Peter; Hansen, Hans Juergen

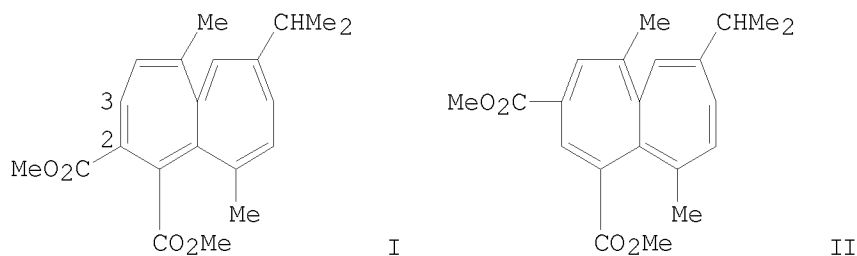
CORPORATE SOURCE: Cent. Res. Units, F. Hoffmann-La Roche and Co., Ltd., Basel, CH-4002, Switz.

SOURCE: Helvetica Chimica Acta (1985), 68(4), 1010-24
CODEN: HCACAV; ISSN: 0018-019X

DOCUMENT TYPE: Journal

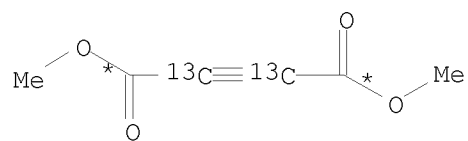
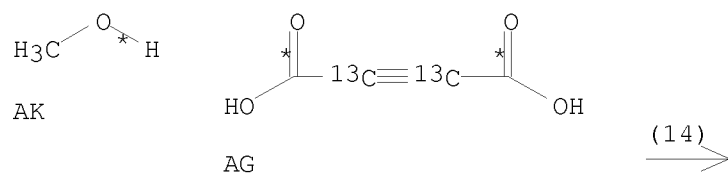
LANGUAGE: English

GI



AB Di-Me 1,2-heptalenedicarboxylates rearrange to 1,3-dicarboxylates above 200°. Labeling expts. indicate that the rearrangement of I occurs by interchange of C-2 and C-3 in the heptalene skeleton. Thus, the I → II process is the 1st thermal σ -skeletal rearrangement of heptalenes. X-ray analyses of I and II are discussed.

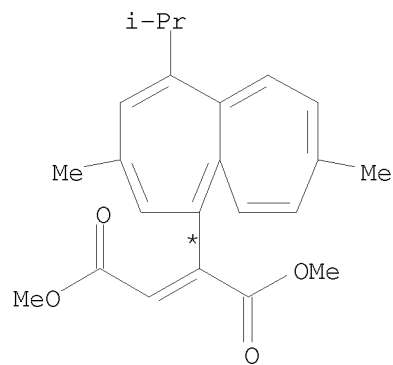
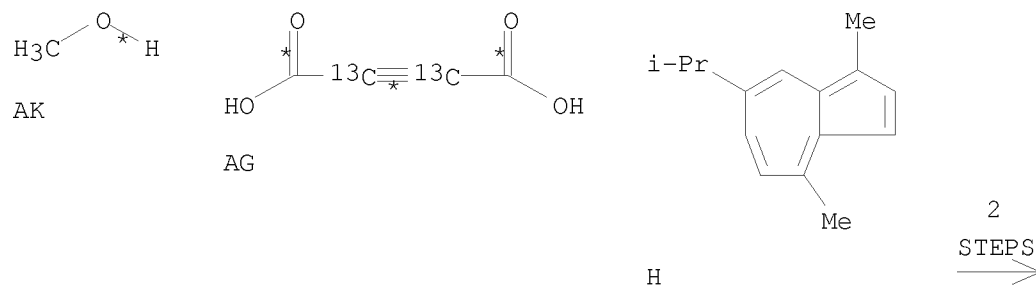
RX(14) OF 39 ...AK + AG ==> AL...



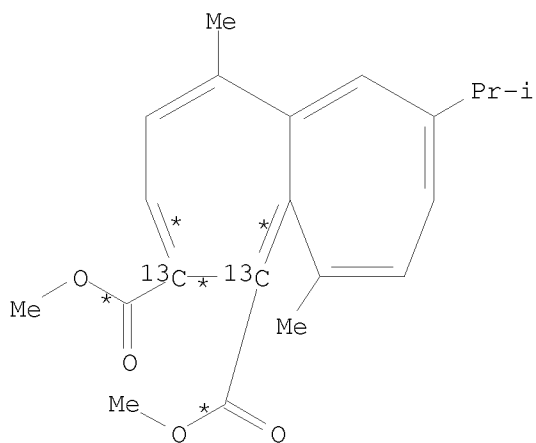
AL

RX(14) RCT AK 67-56-1, AG 101391-58-6
 RGT T 7664-93-9 H₂SO₄
 PRO AL 79519-69-0
 SOL 7732-18-5 Water, 71-43-2 Benzene

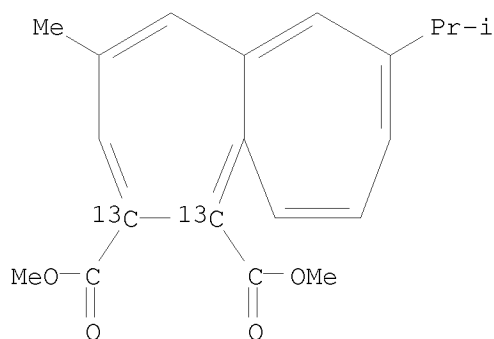
RX(25) OF 39 COMPOSED OF RX(14), RX(15)
 RX(25) AK + AG + H ==> AM + AN + AO



AM



AN



AO

RX(14) RCT AK 67-56-1, AG 101391-58-6
 RGT T 7664-93-9 H2SO4
 PRO AL 79519-69-0
 SOL 7732-18-5 Water, 71-43-2 Benzene

RX(15) RCT H 489-84-9, AL 79519-69-0
 PRO AM 101391-59-7, AN 101391-60-0, AO 101391-61-1
 SOL 119-64-2 Tetralin

AN 105:42061 CASREACT

L13 ANSWER 27 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 104:206693 CASREACT

TITLE: Use of bromine in methanol - preparation of methyl esters

AUTHOR(S): Vairamani, M.; Rao, G. K. Viswanadha

CORPORATE SOURCE: Mass Spectrom. Div., Reg. Res. Lab., Hyderabad, 500 007, India

SOURCE: Indian Journal of Chemistry, Section B: Organic Chemistry Including Medicinal Chemistry (1985), 24B(6), 691

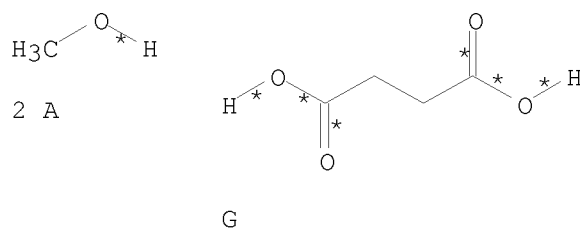
CODEN: IJSBDB; ISSN: 0376-4699

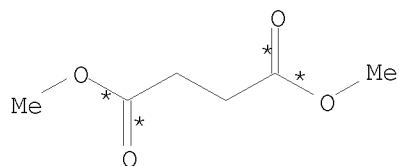
DOCUMENT TYPE: Journal

LANGUAGE: English

AB Methyl esters are prepared in 92-98% yield and 95-98% purity when RCO2H [R = PhCH2, Ph, HO2CCH2CH2, Me(CH2)n; n = 10, 12, 14] with Br2 in MeOH. The reaction is light and/or HBr catalyzed. An acid catalyzed mechanism for the reaction is indicated.

RX(3) OF 9 2 A + G ==> H

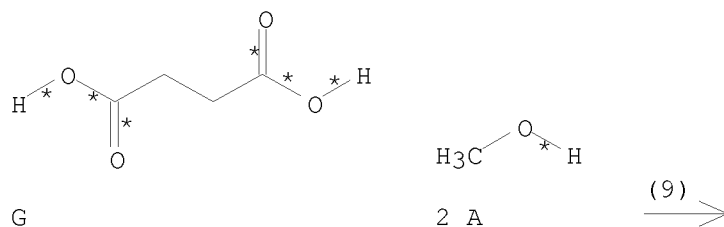




H

RX(3) RCT A 67-56-1, G 110-15-6
 RGT D 7726-95-6 Br2
 PRO H 106-65-0
 SOL 67-56-1 MeOH
 NTE best yield in light

RX(9) OF 9 G + 2 A ==> H



H

RX(9) RCT G 110-15-6, A 67-56-1
 RGT O 10035-10-6 HBr
 PRO H 106-65-0
 SOL 67-56-1 MeOH, 7732-18-5 Water
 AN 104:206693 CASREACT

L13 ANSWER 28 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 103:70927 CASREACT

TITLE: Synthesis of dialkyl esters of succinic acid

AUTHOR(S): Amirkhanyan, M. M.; Elanyan, M. F.

CORPORATE SOURCE: USSR

SOURCE: Trudy IREA (1984), 46, 7-10

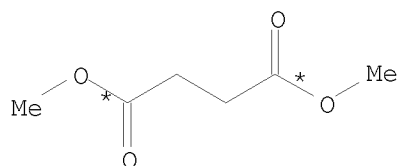
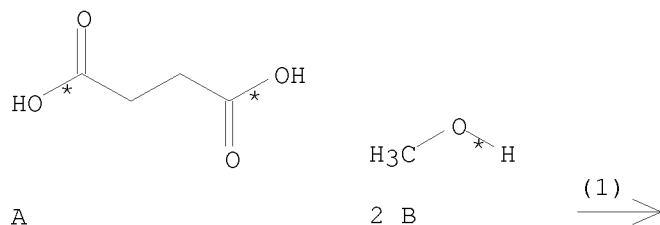
CODEN: TKRKAM; ISSN: 0371-876X

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Direct esterification of HO₂CCH₂CH₂CO₂H (I) with 4 equiv MeOH and EtOH in 50 mL C₆H₆ containing 40 g KU-2 + 8 catalyst per mol I at 110° for 10 h and 140° for 6 h, resp., gave 83.2% di-Me and 96.5% di-Et succinate, resp.

RX(1) OF 4 A + 2 B ==> C



C
YIELD 83%

RX(1) RCT A 110-15-6, B 67-56-1
 PRO C 106-65-0
AN 103:70927 CASREACT

L13 ANSWER 29 OF 29 CASREACT COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 99:52585 CASREACT

TITLE: Reactions of cyclic anhydrides. Part IX. Facile
 esterification of carboxylic acids with
 organophosphorus reagents. Novel application of
 alkylphosphoric esters (APE)

AUTHOR(S): Balasubramaniyan, V.; Bhatia, V. G.; Wagh, S. B.

CORPORATE SOURCE: Sci. Res. Cent., H.P.T. Arts and R.Y.K. Sci. Coll.,
 Nasik, 422 005, India

SOURCE: Tetrahedron (1983), 39(9), 1475-85

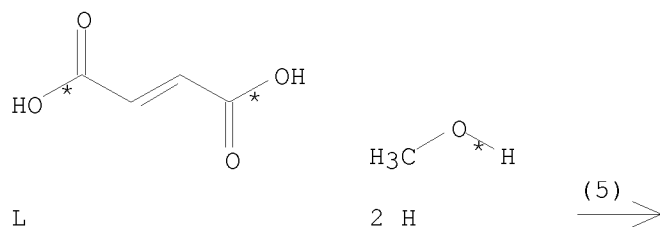
CODEN: TETRAB; ISSN: 0040-4020

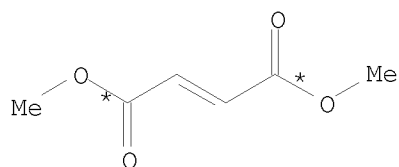
DOCUMENT TYPE: Journal

LANGUAGE: English

AB The APE reagent, prepared from P4010 and excess alkanol, was used for the
 esterification of carboxylic acids (.apprx.50), including maleanilic,
 fumaranilic, and succinanilic acids.

RX(5) OF 73 L + 2 H ==> M

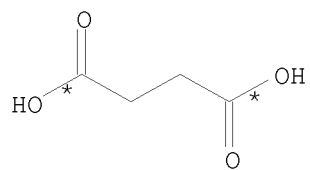




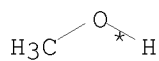
M
YIELD 72%

RX(5) RCT L 6915-18-0, H 67-56-1
RGT D 16752-60-6 P4010
PRO M 23055-10-9

RX(16) OF 73 AC + 2 H ==> AD

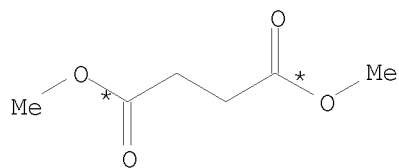


AC



2 H

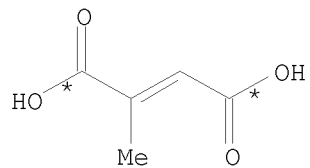
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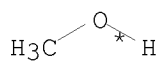
AD
YIELD 60%

RX(16) RCT AC 110-15-6, H 67-56-1
RGT D 16752-60-6 P4010
PRO AD 106-65-0

RX(26) OF 73 AN + 2 H ==> AS

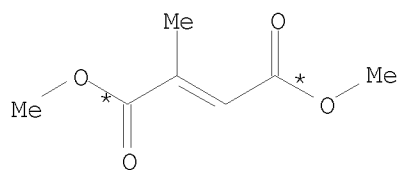


AN



2 H

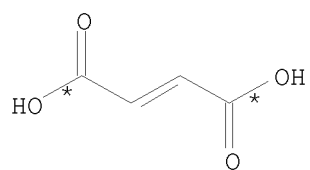
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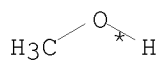
AS
YIELD 68%

RX(26) RCT AN 7407-59-2, H 67-56-1
 RGT D 16752-60-6 P4010
 PRO AS 84569-14-2

RX(61) OF 73 L + 2 H ==> M

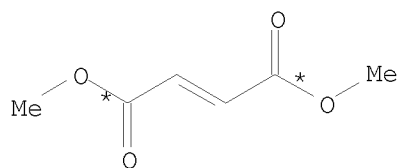


L



2 H

(61)



M
YIELD 73%

RX(61) RCT L 6915-18-0, H 67-56-1
 RGT D 16752-60-6 P4010
 PRO M 23055-10-9
AN 99:52585 CASREACT